

Flight, October 22, 1910.

# FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

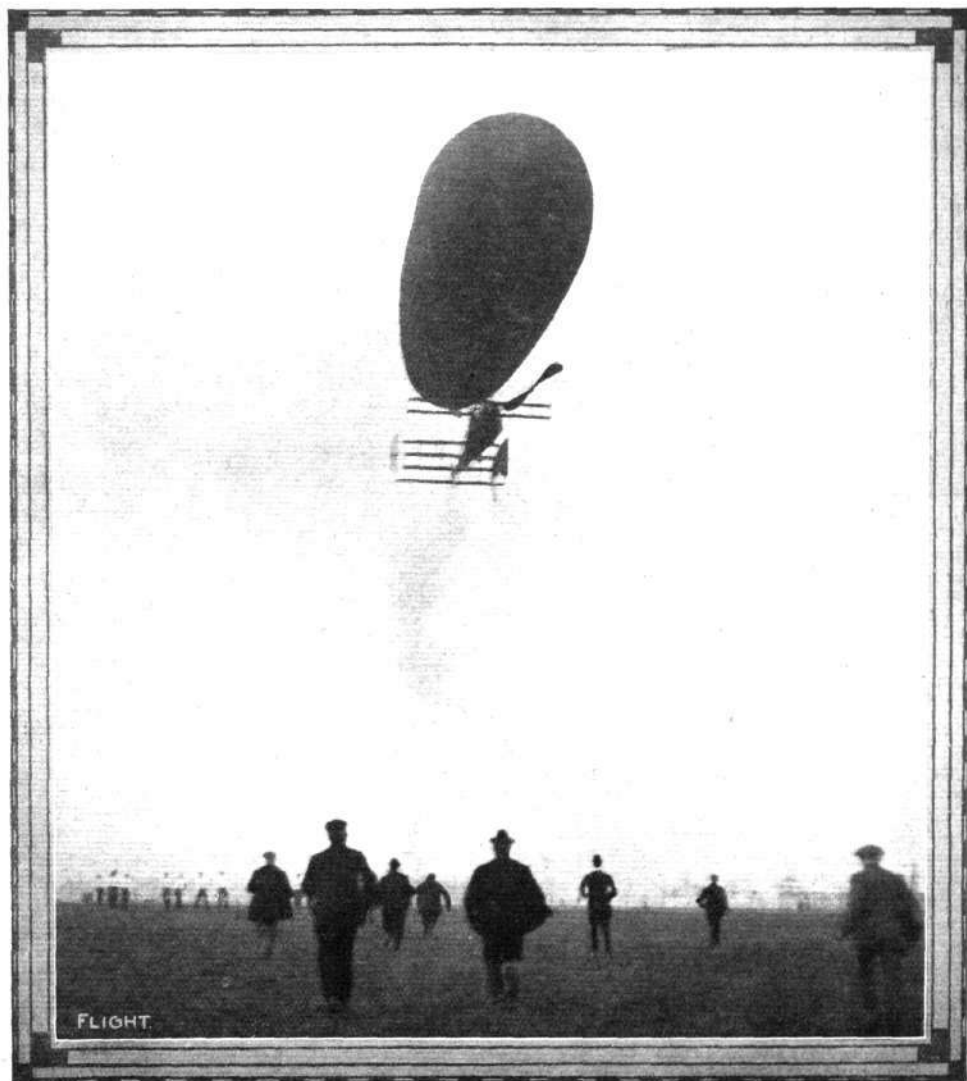
OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 95. (No. 43. Vol. II.)

OCTOBER 22, 1910.

[Registered at the G.P.O.]  
as a Newspaper.

[Weekly, Price 1d.  
Post Free, 1½d.]



PARIS TO LONDON BY AIRSHIP.—The arrival of the Clement-Bayard airship at Wormwood Scrubs on Sunday last. Note the sand ballast being thrown out in order to check too rapid a descent in landing. The military helps are seen in the distance in readiness to receive the airship immediately it arrives within reach.

# THE ADVANTAGE OF HIGH SPEED.

INCREASE of speed by increase of power of the engines employed is such an obvious line of development that it would not of itself call for special recognition, but a proposition that aims at increasing the speed without increasing the power is altogether in such a different category that it has a *prima facie* claim to attention for its own sake. It was to this end that the series of technical articles, entitled "Can We Fly Faster for Less Power?" was written.

In the very early days of aviation, when it was really more or less a question as to whether an aeroplane would get off the ground or not, the sole object of engine design was to produce a powerful motor of absolute minimum weight merely because under these conditions, and under these conditions alone, would it be possible to solve the problem that was then so agitating men's minds. But, once flight had been accomplished, the limitations imposed by the curtailed reliability of engines thus constructed became a handicap on further progress, and the situation to-day is well recognised as being more bound up with the evolution of a reliable motor than in any other single factor. To argue therefore that we must have more power and still more power is to cast a shadow rather than to throw a gleam of light over the future, and it is for this reason that we urge the importance of considering the problem presented by the prospect of flying faster for less power.

And now we come to the other side of the question, which will probably have been uppermost in the minds of our non-technical readers—namely, what is the point in all this craze to fly faster, anyway? There are several aspects to this phase of aviation; the first, and, for the moment, the strongest, is the incentive created by the conditions of the principal flight prizes, which are all based on speed as the ruling factor. Even the second *Daily Mail* £10,000, which some fortunate aviator will win next year, is to be decided by speed—plus reliability. And, it is essential before taking into account any other consideration, to obtain a proper appreciation of the immediate importance of this one alone. All experience in sport, whether it be infected with the spirit of commercialism or not, shows us that the most potent factors in the trend of design are the competition rules current for the time being. It does not matter whether it be a racing yacht, a bicycle, a motor car, or an aeroplane; the rule holds good in every case; thus, for this reason alone, we may confidently look forward to a great increase in flight velocities in the near future.

Taking for granted, therefore, that this state of affairs will come to pass, we may turn our attention to the more serious aspects of the situation that are suggested by reflections as to whether the racing aeroplane will tend to the development of a more useful type of machine. To our mind there is but one answer to this query, an unqualified affirmative.

High speed must be regarded as the chief asset of flying as compared with other forms of locomotion, and it seems to us that the future will show that it is by virtue of this asset alone that aviation will hold its own in competition with other forms of transport. It is by virtue of some such unique characteristic that each method of modern locomotion at present in use maintains its popularity. Rail transport possesses the quality of quickness because its tracks are straight; the motor car is characterised by its great convenience because it makes use of existing highways, while the cargo boat affords an

unrivalled means of cheap transport because the resistance to vessels moving at slow velocities is so low.

Now where does flight come in? In the untrammelled highway of the air the aeroplane has a track that is at once straighter than the rail and more convenient than the road, and for these reasons alone it apparently possesses inherent qualities that should enable it to compete most successfully with the train and the motor car. But the balance of power is not thus easily disturbed in nature; the flying machine suffers from one great disadvantage in comparison with other methods of transport—it is uneconomical.

At the present time transport by air is comparable with dragging an equal load over a road of sand; if our most sanguine expectations are reached the conditions will not be superior to a highway of indifferent cobble stones, and even in this advanced stage the resistance to motion will be some four times greater than in the case of the motor car, eight times in excess of the railway train, and eighty times as much as the cargo boat.

It is not difficult to guess what the verdict of the commercial world would be if it were presented with such figures as these, without some very adequate compensation to favour the use of the aeroplane. Only one thing can outweigh the question of cost, and that is a unique ability to perform something that is outside the scope of present possibilities. And the unique asset that will justify the use of the aeroplane will be its attribute of exceedingly high speed. Among civilised communities speed is becoming an increasingly important factor—the whole tendency of modern life is towards more speed and yet more speed. We travel faster, we live faster, we do everything faster than was done in the last generation, and it is not unreasonable to assume that the next generation will do everything faster still. Yes, unquestionably the commercial success of aviation is essentially bound up in this question of high speed. And if, as time goes on, experience shows that the upkeep of the aeroplane as compared with the upkeep of other machines is an item in its favour, then so much the better for those who have had the enterprise to encourage its use.

There is yet another aspect of high speed that must not be forgotten, and the fact that it is a technical point is all the more reason why readers of *FLIGHT* should bear it in mind. High speed is a factor of safety in flight, and other things being equal the aeroplane that is designed to fly fastest is also the safest to use: that is to say, such an aeroplane by virtue of its higher speed is possessed of natural stability in a greater degree, and is thus relatively more independent of weather conditions. From every point of view then high speed is desirable. Firstly, we must have speed to enable the aeroplane to compete against other forms of traction, and secondly we must have speed to assist us in the development of a more practical type than is as yet in use. As we have already pointed out, we can achieve this by putting more power into the machine, or, which is an altogether better alternative, we can attain our object by improving the general design of the machine as a whole. It is along the latter lines, we think, that the real improvement must come, for it is along these lines that we see the brightest prospects of attaining that other factor, without which the aeroplane simply cannot exist, engine reliability. And it was with that purpose in mind that the series of articles to which we have drawn attention was written.

## FLIGHT PIONEERS.



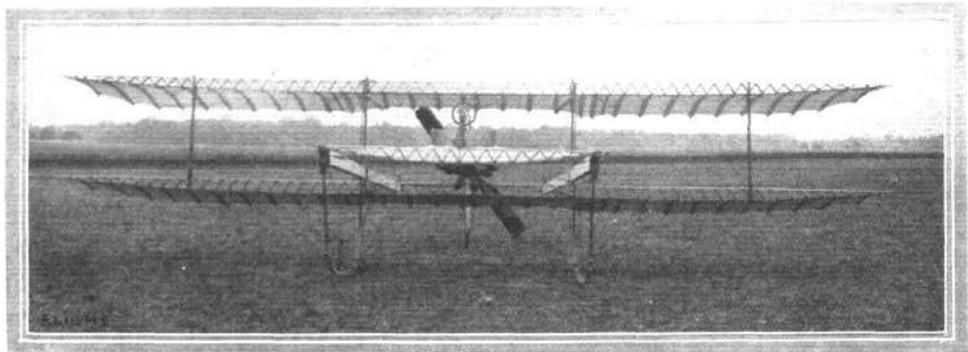
M. ALPHONSE CLEMENT.

## THE PAULHAN BIPLANE.

CONSIDERABLE interest attaches to Paulhan's *machine à voler*, as he prefers to call it, both because of its constructor's great reputation as an aviator of the highest class and because of the originality of the design. One is anxious to find out from it the secrets taught by experience to an expert and observant aviator, and to see if possible how such teaching differs, if at all, from that of abstract theory.

Superficially, the most striking feature is the method employed in the construction of the framework, a method which at once shows the connection of Henri Fabre with the design. The fuselage and

far from houses and spending the night in the open, or if it be necessary to alter the wing area. Four wooden stanchions are fitted between the beams of the main planes, and to the centre pair are clipped the beams which run fore and aft to carry the elevator in front and the horizontal tail behind. To these central stanchions are also attached the pillars at the rear of the landing skids. For nearly all these flexible joints and for the hinges of the elevator and tail M. Paulhan has introduced a neat arrangement in which a strip of chrome leather bears all the movement.

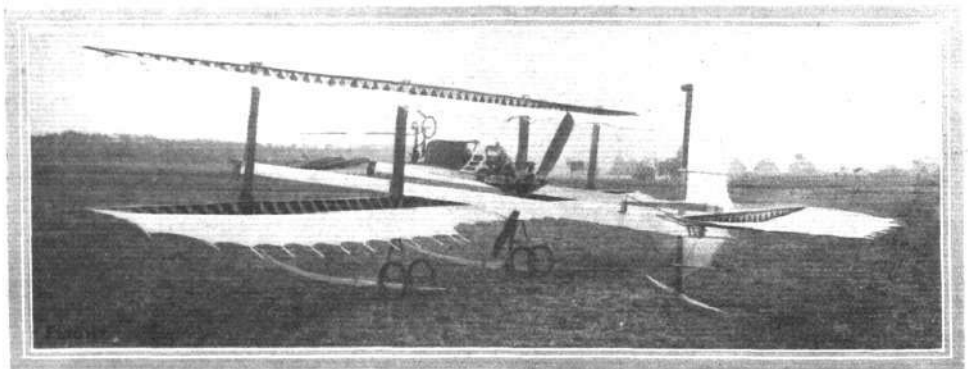


PAULHAN'S NEW BIPLANE.—View from in front.

the leading edges of the planes are of a built-up lattice-work of great strength, thus doing away with the majority of the customary wire stays.

The machine is a biplane fitted with a forward elevator and single-plane stabilising tail, in front of which appears the rudder. The main planes lie midway between the elevator and tail, and are divided into three sections, the centre one of which is stationary, the two outer ones being connected in such a way that the angle of one or other of the sections can be altered for the purpose of maintaining lateral stability.

One very interesting part of the design is that the *nacelle*, which carries the motor and propeller, the petrol tank, and the seats for pilot and passenger (side by side), and on the forward end of which is mounted the controlling wheel and levers, is rigidly suspended between the main planes by steel cables from top and bottom of the central stanchions. It is claimed that this method of attachment is exceptionally light, and facilitates the mounting and adjustment of the motor. The vertical rudder, which, as we have said, is placed just in front of the horizontal tail, is also attached to the rear end of the outriggers in the same way. At the foot of the vertical beam



PAULHAN'S NEW BIPLANE.—General view from behind. The surface area of the planes can be altered in a few minutes.

The construction of the wings is very interesting. The entering edge consists of a beam made by the insertion of a kind of lattice work between two strips of ash of about 6 ins. in width, the ends of which approach each other. In the centre of the plane the two strips are 6 ins. apart. From this beam spring the ribs, each fastened by an ingenious clip, which can be released readily when the replacement of broken spars is necessary, or if it is desired to alter the curvature of the wing. Over these is spread the canvas, each rib sliding through a pocket. The canvas is attached to the trailing edge end of the ribs by tiny hinged spring-clips. It is thus possible to remove the entire canvas covering, if a hangar is not available during rain, or when making long journeys

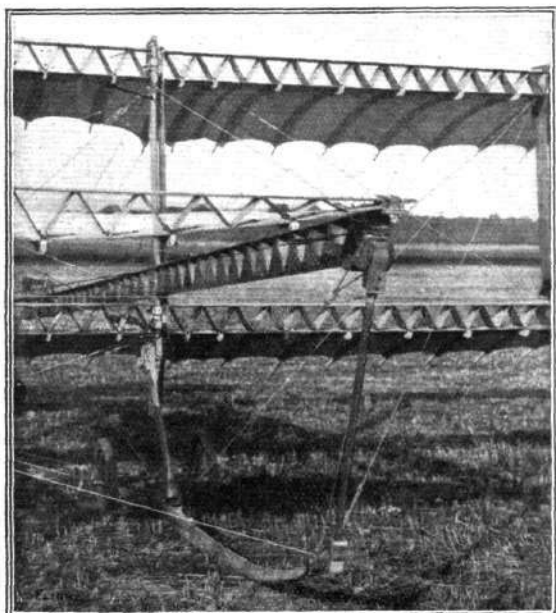
carrying the rudder is a wooden skid, which can be operated by a cable from the pilot's seat to act as a brake.

The control is by wheel, mounted on a shaft, the backward or forward movement of which works the elevator. For steering, the wheel is rotated and a right or left movement of the entire control alters the angle of the wing sections.

The angle of the tail, which is hinged to the frame, can be readily adjusted on the ground by the movement of levers up and down a slotted bar, mounted on the rear end of the outrigger, as in one of the accompanying photographs.

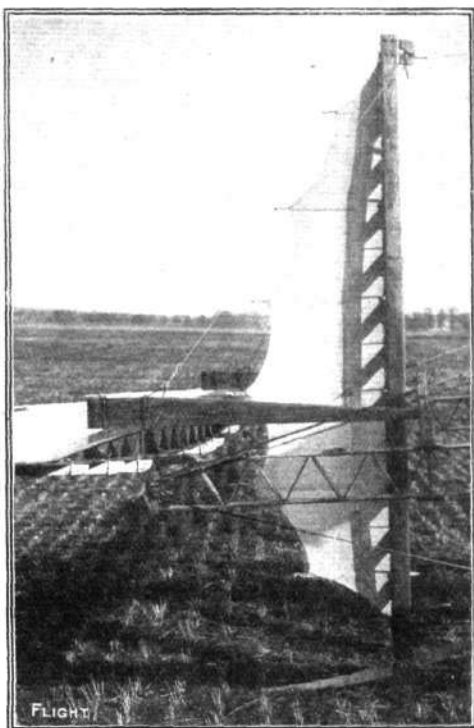
M. Paulhan fits the Gnome motor and Normale propeller as standards.

The landing chassis resembles that used on the Farman machine in many ways, but it has some useful original points. The skids are connected in front to the elevator outriggers by the chrome leather hinge-clips and wooden rods.



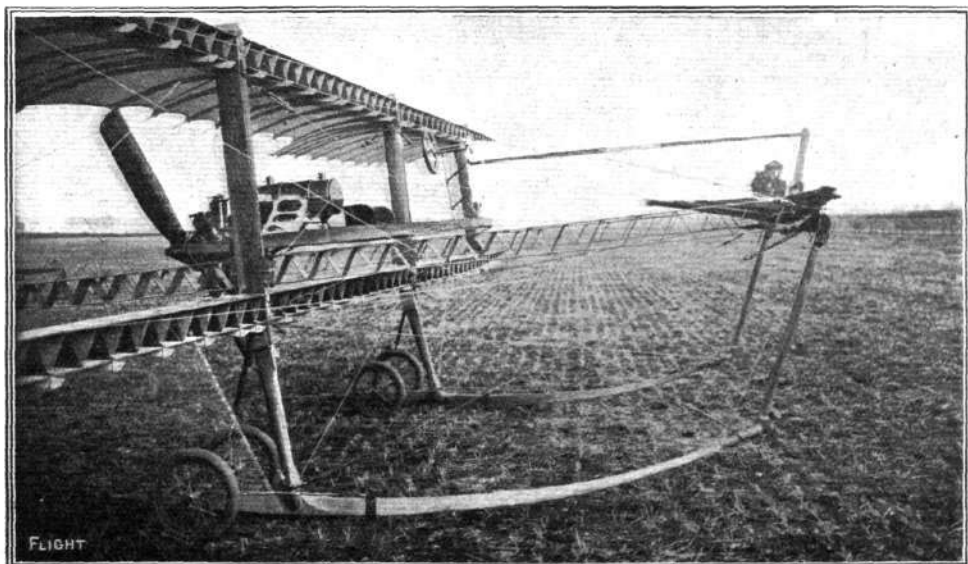
In this view of the Paulhan biplane the girder construction details of the front of the planes and the leather attachments employed for all joints can be seen.

The strength of the construction is incontestable, and the expenditure of thought is obvious, but as yet one knows nothing of the flying capabilities of the *appareil*.



Detail view of the wooden rudder on the new Paulhan biplane.

The rights for Great Britain and the Colonies are vested in Mr. Holt Thomas, and the appearance of the novel aeroplane on this side of the Channel will be awaited with great interest.



The skids, elevator, pilot's seat and steering-gear of the new Paulhan biplane are seen in this photograph.



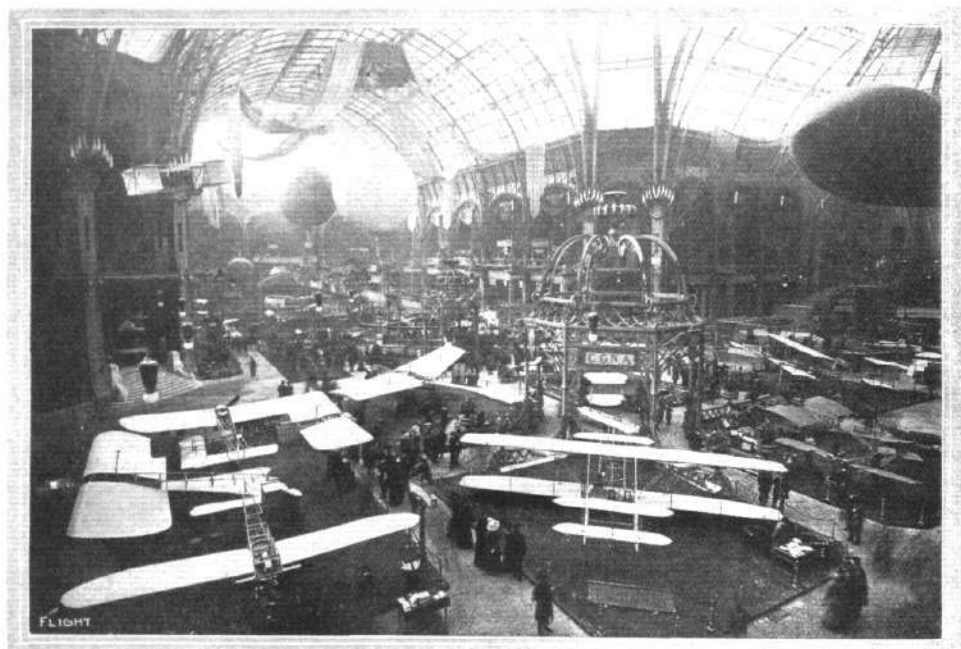
# IMPRESSIONS OF THE PARIS SHOW.

By OISEAU.

IT has been from time immemorial the custom of all humankind to divide their existence into periods, that they might with some manner of ease estimate progress made or lost. One could imagine from histories of human endeavour that certain battles were fought and certain treaties signed solely that the tale of existence might be arranged in sections suitable for consideration. And individually year by year we almost instinctively look back on our personal progress. So, too, in all branches of art, literature, and science.

The aeroplane in one brief year has become known in all the corners of the earth. Flights have been made on the plains of India and over the snows of Russia. The inscrutable Sphinx has seen them pass and repass. The deepest valleys of the Alps, the greatest heights of the Catskills, have borne their shadows, and all this during the short space of one year.

The essential features of design remain to a large extent the same, the sole alterations, as a rule, being towards simplification and the



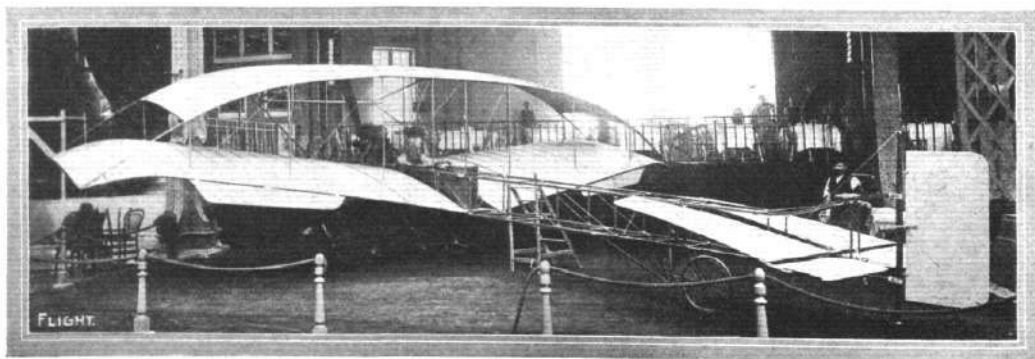
PARIS FLIGHT SALON.—General view of the Aeronautical Show which opened at the Grand Palais on Saturday last.

The chief use, therefore, of aeronautic and automobile exhibitions is the estimation of improvements and the preparation for another period.

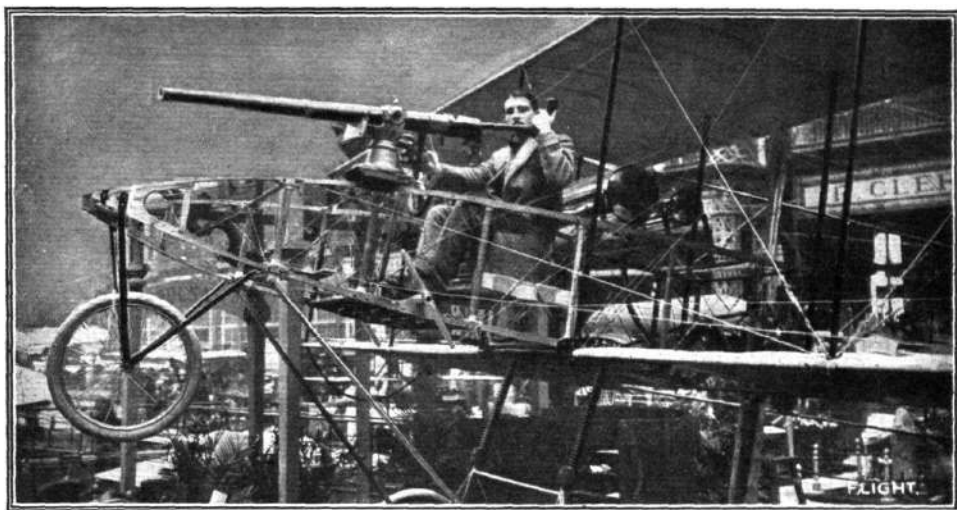
It is not always one is so fortunate as to find a record of such progress as is shown in the present international exhibition of aeronautics held in Paris this week. Rarely does any science advance so rapidly as aviation has done since the performance of the first mechanical flights—those of the Brothers Wright—some three or four years ago.

strengthening of vital parts. The recent rapid development of aviation has been mostly due to the improvements in the design and the construction of the engines, and only a little to modification in the machines themselves. Only one of the great firms has completely altered its type—that of Voisin Frères.

But from whatever point of view we may regard aviation, aesthetic or scientific, there is at the present exhibition sufficient to interest all those who are in any way attracted by the study of the evolution of human knowledge. And as the future of aerial navigation is



The biplane exhibited at the Paris Salon on the stand of Messrs. Sloan and Co.



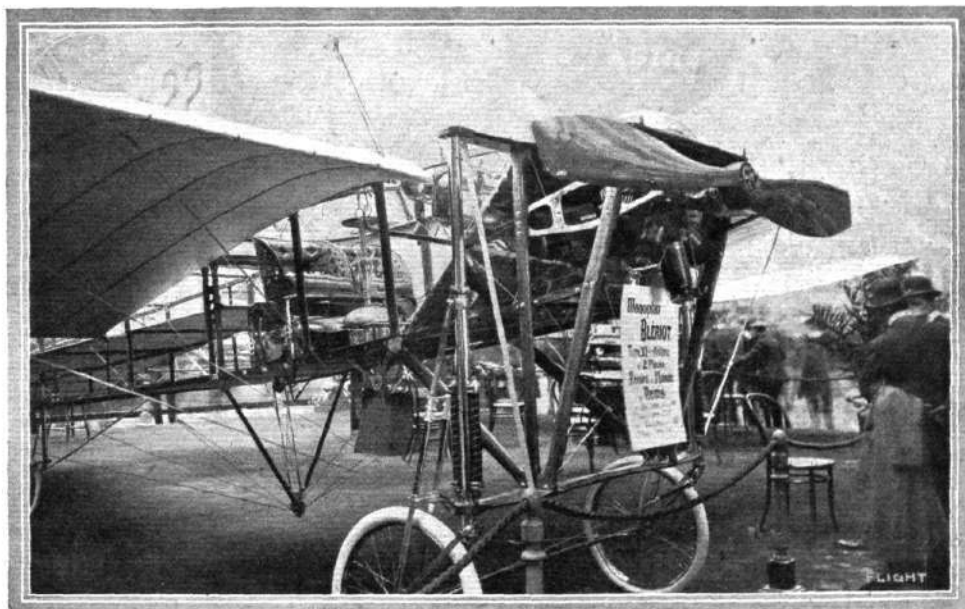
Voisin new type two-seater biplane, without elevator, fitted with 50-h.p. Gnome motor and French service mitrailleuse in front of passenger's seat.

assured, it behoves us all to accumulate as much knowledge as we may on the subject, even though we may not be personally interested in its furtherance.

One hears of opposition to the perfecting of aeroplanes on the ground of their only use being as a deadly engine of war. A short-sighted idea, perhaps, but still conceivable. Let such people remember that in the accumulated terrors of war lies the surest guarantee of peace.

The official opening of the second Exposition Internationale de l'Aéronautique was marred by the existence of the railway strike, the President and the Premier considering it advisable not to appear in person. For some days it even seemed probable that the opening

would be postponed owing to the general disorganisation of goods traffic and the consequent non-arrival of most of the aeroplanes. Stories, happily untrue, came into Paris of Show machines being smashed to fragments by infuriated mobs of strikers. However, on Thursday the strike practically collapsed, and in a marvellous manner the greater number of constructors managed to erect their machines on the stands, only a few spaces being left vacant. On Saturday morning the only unusual feature was the presence near the Grand Palais of a half squadron of Cuirassiers and a few Infantry of the line. Though the President did not attend, several Ministers of State were conducted round the Show by M. Robert Esnault-Pelterie, among them the Minister of War, General Brun,



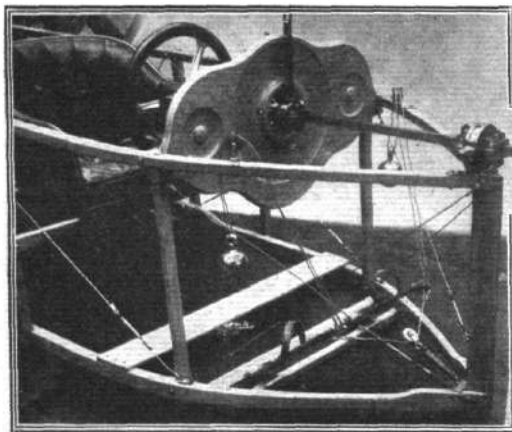
Military two-seater type of Blériot monoplane at the Paris Salon, showing details of the landing chassis and body construction.



General view, down the centre, of the Paris Flight Salon.—In the foreground is seen the Turcat Mery-Rougier machine and the Compagnie-Aerienne stand also, prominent aloft being the small spherical balloon over the "Continental" exhibit, the Hutchinson "Astra" balloon, and on the left the nose of "Zodiac III."

who naturally takes the greatest interest in an industry which he has done so much to encourage.

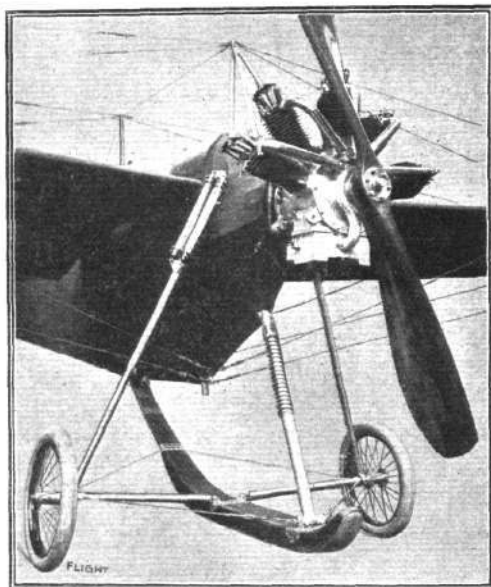
One is accustomed to give the French every credit for the exceptional artistic and satisfactory manner in which they decorate and arrange spectacles of every sort, but one cannot refrain from one or two criticisms of some of their methods at this Exhibition. In the first case no one save the veriest imbecile thought of paying an



Maurice Farman control at the Paris Flight Salon.—The pedals are used to actuate the ailerons, the wheel is turned for steering and moved backwards and forwards for elevating and depressing.

entrance fee on Saturday. Cards were issued broadcast to all who cared to ask, and one had the unedifying sight of countless beggars selling tickets at the very doorways for what they might fetch. Then, again, the officials taking tickets, not having any receptacle into which to throw them, simply threw them, torn into two pieces, on to the floor. After the first few hours the entrance hall resembled an English voting room after a municipal election. Inside, whilst each stand was as a rule extremely well designed and mounted, the general effect was not as attractive as is usual in France. The passages between the rows of exhibits had in places a covering of fine yellow sand which soon spread itself over the scarlet carpet of the stands. Still, perhaps these criticisms are a trifle captious, and they in no way detract from the general excellence of the exhibits.

This year there is a notable absence of freakish machines. The money of harmless lunatics is doubtless not inexhaustible, and the patience of the gullible section of the public is dead, perhaps, but certainly there are few aeroplanes shown which have not, in



Details of the landing-skid and chassis, engine and propeller of the R.E.P. monoplane at the Paris Flight Salon.

appearance at least, a prospect of future flight. There is a general tendency to adhere to certain root principles of form. Among biplanes there are perhaps three or four general types to which most double-planned machines conform, and in monoplanes perhaps two.

Of the helicopter there is but one example present, the Voiturette, and that differs but little from the model displayed last year. Some of the more exceptional features of certain machines have disappeared or have been greatly modified, such as the vertical curtains on the Voisin, which machine now maintains lateral stability by means of the customary ailerons. The R.E.P., once the strangest of monoplanes, has now come into line with ordinary practice as to the tail and rudder, with what great success can be judged from recent results.

The majority of aeroplanes have a similar type of control to the H. Farman; that is, a foot-bar for steering, and a hand-lever combining the necessary movements for elevating and gauchissement. Another class has adopted the Voisin wheel control, the wheel being pushed backwards and forwards for elevation and turned one way or the other for gauchissement. A few follow the Antoinette practice of separate controls for each of the three movements. Absolute originality is scarce, and none of it very promising. As to chassis systems, these are extremely diverse in type, the Farman and Blériot methods being perhaps more often adopted and in a modified shape.

The monoplane, generally speaking, has altered but little in essential design during the year, the increased success of the type being mainly due to the great improvements made in aviation motors. The use of ailerons has almost entirely disappeared before



the more favoured wing flexing. The tubular fuselage seems to be coming into fashion, and there are several interesting examples of it at the Show.

More change is noticeable in the design of biplanes. All types are greatly reduced in size, and tend towards the monoplane principle. Only four or five machines retain the forward elevator, and that in each case in conjunction with one on the tail. The Wright is almost alone in the employment of a biplane front elevator, whilst the Farman is the only machine with a biplane tail. The chord of the main planes has become less in the majority of cases, the Breguet biplane, for instance, having planes of a little over 3 ft. in width.

The Goupy, Turcat-Mery and Rougier, and one or two others place the propeller in front of the main planes, whilst a few, such as the Farman, Voisin, and Wright, still retain the old position.

In construction there is an increase in the use of steel tubing and steel joints and sockets, with a corresponding decrease in the use of aluminium. Such wooden stays as are in use are given in most cases an oval stream-line form. In fact, considerably more attention has been shown all round to the reduction of head resistance. Different methods of plane construction, such as that employed both on the Paulhan and Faber machines, is responsible for the disappearance of a great deal of wire stay work.

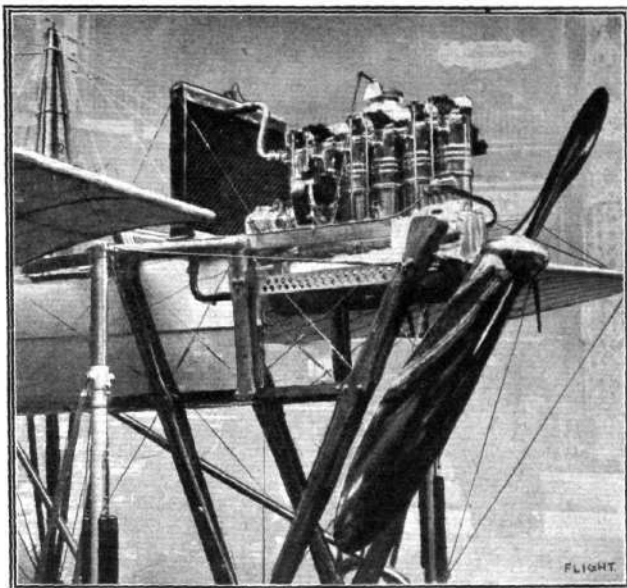
There is a notable improvement in the finish of the aeroplanes shown this year. At previous exhibitions heavy coats of varnish and startling colours covered a multitude of sins. Makers have at last begun to realise that the extra care entailed in giving a perfect finish helps greatly towards an increase of strength. One or two of the machines look as though they had been assembled in too great a hurry, a few, perhaps, have the battered appearance consequent on previous use, but as a rule the exhibits have been built with the greatest of care and attention to detail. Good examples of artistic work can be found in the Antoinette monoplane, in both the Farmans, and in the Blériot.

The military value of aeroplanes as illustrated during the recent manoeuvres has induced many makers to design specially for the Army. Clerget, for instance, has produced a tandem monoplane with three seats and driven by a 200-h.p. motor. Voisin is the first to fit a mitrailleuse to his two-seater biplane. The effects produced after firing this gun from some height ought to be interesting. The Breguet biplane and the Hanriot and Blériot monoplanes are also mounted as aeroplanes of war.

There is no alteration worth noticing on the Antoinette monoplane. In fact, since the disappearance of ailerons from this type well over a year ago, no change of any importance has been made. Since the death of Wachtler the wire stay cables below the wings have been strengthened sufficiently to render a recurrence of that fatality even under similarly adverse circumstances extremely unlikely. A wooden propeller, the Normale, has now taken the place of the old adjustable one of metal, which was never really satisfactory. A few changes have been made in the structure of the engine, to the improvement of which is due the recent excellent performances of the Antoinette.

Similarly, few changes appear on the Henry Farman biplane from that used during the last few months. The clumsy universal-joint connecting the control-lever to the frame has now disappeared, and its place has been taken by a neat device, which will be illustrated later. The whole machine has a much better finish than had its predecessors.

M. Maurice Farman has discarded the vertical planes once fitted by him, and the skids on his machine are now continued until they join the elevator, as on the Sommer.



The front chassis section of the Tellier monoplane, showing the very strong construction of the fuselage and simple fitting of the 6-cyl. Panhard aviation motor.

The Wright biplane now fits wheels as a standard, and the stabilising tail first introduced by the French company appears on all machines.

M. Blériot exhibits machines similar to those which have done so much to increase his reputation during the past few months. He, too, has a military type of monoplane—a two-seater made rather heavier and stronger than usual. Except in so far as the fuselage has been altered to take the Gnome engine, the Blériot remains the same in appearance now as it was a year ago. The angle of inclination and the wing curvature is much less, and to the passenger machine is fitted a fan-shaped tail. Beyond that no change.

After many months of faithful adherence to the cumbersome but simple box-kite type of biplane, Messrs. Voisin have recently come into line with other makers, and with astonishingly successful results. The machine displayed by them on the stand of the Compagnie Aérienne is a two-seater copy of the Paris-Bordeaux type. The front elevator has gone, though the fuselage is still built out in the canoe-shaped manner of the earlier models, but without the former canvas covering. Gone, too, are the vertical planes and the box tail. Large ailerons are fitted to the trailing edge of the upper plane, and the present tail is one of the simplest on the market. The trailing edge of the tail plane (which is curved and weight carrying) is hinged and acts as an elevator, and the square rudder is immediately beneath. The two seats are placed side by side, the passenger sitting to the left. In front of him is placed, on this model, a mitrailleuse of similar calibre to those used in the French Army, but considerably lighter. Steel tubes have replaced the wooden portions of the framework.

(To be continued.)

## ANALYSIS OF MOTORS AT THE PARIS SHOW.

Vertical cylinders.	V type.	Radial cylinders.	Opposed cylinders.	Rotary engines.
Labor.	Renault.	R.E.P.*	Darracq.	Gnome.
Chenu.	Daimler.	Anzani.*	Bayard-Clement.	Rossel.
Gregoire-Gyp.	Clerget II.	Viale.*	Dutheil-Chalmers.	Filtz.
Clerget I.	Antoinette.	Lemasson.*	Suere.	Bayard-Monier.
Aster (desaxe).	E.N.V.	Anzani.	Coudert.	
Wright.	Fiat.	Canton-Unne.		
Gobron-Brillie.		Farcot.		
Panhard.		* Semi-radial.		

Special engines.—*Broc*, neither poppet or slide valves; *Canda*, radial cylinders fixed tangentially and completing 4-stroke cycle every revolution; *Weiss*, fixed pistons, moving cylinders; *Ligas*, 3-cylinder rotary, both cylinders and crank-shaft rotating; *Beck*, curved cylinders.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Committee Meeting.

A MEETING of the Committee was held on Tuesday, the 18th inst., when there were present:—Mr. C. F. Pollock (in the Chair), Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Prof. A. K. Huntington, Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Sir Charles D. Rose, Bart., Mr. Stanley Spooner, and Harold E. Perrin, Secretary.

**New Members.**—The following new members were elected:—

Ernest Robert Beney.	His Highness the Maharajah of
Capt. C. J. Burke.	Patiala.
W. Kempton Cannon.	E. D. Ridley.
Victor Francis Maude.	Herbert J. Sich.
H. E. Outram.	W. J. Walters.

**Eastchurch Flying Ground.**—*Road.*—The question of making up the road to the Eastchurch Flying Ground was considered, and the Committee voted the sum of £350 for that purpose.

**Club House.**—The Committee considered the question of a Club House at the Eastchurch Flying Ground, and the following Sub-Committee was appointed to draw up a report and submit to the next meeting. Mr. Ernest C. Bucknall, Prof. A. K. Huntington, Mr. F. K. McClean.

**Association.**—The agreement with the Northumberland and Durham Aero Club was ordered to be signed.

**Next Committee Meeting.**—Owing to the Conference of the Federation Aeronautique Internationale in Paris and the Aero Exhibition, the next meeting of the Committee will be held on Tuesday, November 1st, 1910.

## Federation Aeronautique Internationale Conference.

A meeting of the delegates was held at the Club on Monday, the

17th inst., when the various questions to be submitted to the Conference to be held in Paris were considered.

The delegates will leave for Paris on Wednesday next, the 26th inst.

## Rolls Memorial Fund.

Members who have not yet sent in their contributions to the above Fund are requested to do so as early as possible. By limiting individual subscriptions to the sum of 10s. the Committee hope they will receive the support of all members.

Contributions of books to the "Rolls Memorial Library" will also be greatly appreciated.

A list of subscriptions received up to October 12th was published in the last issue, and the following have since contributed up to October 19th, 1910:—

Lt.-Col. C. F. Call, John L. Cunningham, C. G. Grey, Thomas W. Godsell, Kumar Shri Jareja, Paul A. Rubens, Capt. V. H. Secker, and E. S. Strong.

## Eastchurch Flying Ground.

A large number of Naval officers from Sheerness and Chatham visited the Flying Grounds on Saturday and Sunday, the 15th and 16th inst., and witnessed some good flights by Mr. F. K. McClean.

## International Aerial Exhibition, Paris.

A party of members will be visiting Paris in connection with the Aero Exhibition, leaving London on the 26th inst. Members wishing to join them are requested to communicate with the Secretary at the earliest possible moment.

It is hoped to arrange special reduced fares.

HAROLD E. PERRIN,  
Secretary.

166, Piccadilly.



View of Burton-on-Trent, as seen from M. Beaud's Henry Farman biplane when he flew over that town at the recent aviation meeting.

## PROGRESS OF FLIGHT ABOUT THE COUNTRY.

**NOTE.**—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.)

### Another Aeroplane Society for Coventry.

It is proposed to form in Coventry and district an aeroplane building and flying society, for the purpose of obtaining possession of workshop, tools and ground for building and experimenting with models, gliders and full-sized machines. Those who are interested in above project kindly communicate with Mr. J. W. Schofield, 22, Kingston Road, Earlsdon, Coventry.

### A Model Aero Club at Doncaster.

A NUMBER of enthusiastic model makers at Doncaster have formed themselves into a club under the style of the Doncaster Model Aero Club, and we understand that there is every prospect of a large number of members joining. Several of those who have formed the club have already experimented with a full-sized glider with fair success. The hon. sec. is Mr. E. H. Ellingham, 25, Christchurch Road, Doncaster.

### Manchester Ae.C. (Model Section) (52, MANSFIELD CHAMBERS).

ON Saturday last Mr. G. T. Richards, A.M.I.A.E., gave his lecture on "Scientific Model Construction."

He said that models were means whereby a series of progressive experiments could be carried out, wind currents studied, and the behaviour of models in these currents studied; and consequently they were not to be treated as toys. Mr. G. T. Richards illustrated the method of laying out Antoinette type wings so as to obtain the varying ribs, and some very interesting results that the lecturer had obtained from tests on wood girders were handed round to the members, great interest being taken in examining these, the broken test pieces. The lecturer also gave a short description of two motors he had designed and was going to experiment with. A description of one of his automatic controls was very interesting, as also were the short accounts of other automatic controls, including cam and gyroscopic controls. On October 29th Mr. T. W. K. Clarke, B.A., will give a lecture on "Models: some Remarks on their Theory and Construction," while to-day, Saturday, Mr. J. W. Carr, the hon. sec., will give a lecture on "The Pressure of the Wind."

### Midland Aero Club (GRAND HOTEL, BIRMINGHAM).

IN addition to the existing flying ground at Wolverhampton, the council of the club are hoping to procure in the near future a similar practising ground in the vicinity of Birmingham. Last week particulars were given of the club's programme during the coming winter, but no mention was made of the four prizes offered for competition among members. Three prizes of £2 each are offered for:—(a) the best design for a glider; (b) best scale model

of any well-known type of aeroplane; (c) best essay on any subject pertaining to aviation. The fourth prize, of £3, is offered for the most original and practical accessory for use on an aeroplane.

In co-operation with the Aero Clubs of Yorkshire, Manchester, Lancashire, and Bristol, it is the intention of the club to organise cross-country contests on an extensive scale next June.

### Northumberland and Durham Ae.C. (ROYAL TURK'S HEAD HOTEL, GREY STREET, NEWCASTLE-ON-TYNE).

THE annual general meeting of this club has been arranged for Thursday next, the 27th inst., at 7.30 p.m., when the President, the Hon. Chas. A. Parsons, C.B., F.R.S., will take the chair. At the close of the meeting a cinematograph display, including pictures taken at the recent meetings, will be given.

### Paddington and Districts Aero Club (2, EDBROOKE ROAD, W.).

THE following are the rules governing the model competitions which will be held by this club on Saturday next, 29th inst., at the Paddington Recreation Ground:—

1. Competitors may enter any model;
2. Competitors must be at the judges' flag by 2.30 sharp;
3. Reasonable repairs will be allowed at the judges' discretion;
4. If time permits, two flights will be allowed for each event, best one to count;
5. All machines must be numbered;
6. Maximum number of marks 100 for each event;
7. Judges' decision to be final in all cases. Entrance fee, 1s.; 3d. for each event afterwards.

In all events the prizes will be silver medals.

### Scottish Ae.S. (Model Aero Section) (3, STANMORE RD., GLASGOW)

THERE was a fairly large attendance of the public at the first flying competition of this club held in the Drill Hall, Crosshill, Glasgow, on Saturday evening last. Four competitions had been arranged for longest flight, circular flight, directional flight, and general efficiency, and each event was divided into two sections, one open to all, and the other confined to members. Twenty competitors took part, the machines tested numbering 30, and with one exception all of them were of the monoplane type. Although several of the competitors were not members of the club, yet it is notable that all the prizes were secured by members. They were as follows: Longest flight (members)—Mr. C. W. Ellis; (open)—Mr. G. M'Williams. Circular flight (members)—Mr. M'Williams; (open)—Mr. R. M. Glenesk. Directional flight (members)—Mr. Glenesk; (open)—Mr. M'Williams. Mr. M'Williams also carried off the special prize for the best performance and also the awards for general efficiency both in the open and confined classes. The awards consisted of a bronze medal and half a guinea in the members' classes and 15s. in



CONISBORO' MODEL AEROPLANE SOCIETY.—Group of officials and competitors at the recent meeting promoted by this Club.

the open classes excepting those for general efficiency, where the prizes were a gold medal and one guinea in the members' class and a gold medal in the open class. The meeting was presided over by Colonel John A. Sillars. Messrs. William Cooper, George P. Currie, Walter Crebar, and W. G. Duncan acted as judges, and Messrs. C. J. Waldie, P. L. O. Guy, and William Crebar as timekeepers. The arrangements for the competitions were in the hands of Mr. James Duncanson, secretary of the club.

**Sheffield & District Ae.C.** (22, MOUNT PLEASANT RD., SHARROW)

MEMBERS should make a special point of attending the gliding ground at Tinsley to-day (Saturday), when gliding will be indulged in during the afternoon, after which the committee have decided to dismantle the machine and transfer same to the works for renovating for next season. A model competition will also be held for the season's aggregate distance prize.

## BRITISH NOTES OF THE WEEK.

### Brooklands Aerodrome.

HEAVY winds prevailed all the week, keeping the "busy bees" at Brooklands in their respective "hives." The very short intervals of comparative calm were watched for, and instantly taken full advantage of. Tuesday saw the Howard Wright biplane, the Lane Blériot, and Mr. Davies on the Hanriot making straight flights. A mishap happened to Mr. Davies' engine when about to land, a crack developing in one of the cylinder heads. The water spurted over Mr. Davies, who fortunately had the presence of mind to make a good landing, and escaped with only a few burns.

Mr. Gilmour, Mr. Macfie, the Bristol biplane, M. Blondeau, and Lieut. Marks made what use they could of the few minutes' calm on Saturday and Sunday early mornings and late afternoons. There was the usual gathering of interested and patient spectators on Sunday afternoon, who were rewarded by seeing the "Big Bat" soaring round at a good height in the fast gathering dusk.

Monday, the 17th inst., showed but little improvement in the weather. In spite of this a pupil brought out the new Avro-plane, now fitted with a pigeon tail, for a trial run. The pupil apparently considered such preliminary practice unnecessary, so, letting the 35-h.p. Jap do its best, he rose very unsteadily with the wind. Naturally this proved more than he could manage, and after

200 yds. he came down sideways on the sewage farm, the *bête noir* of all beginners at Brooklands. The right-hand planes were completely smashed.

In this period of breaking records, the recording anemometer at Brooklands claims some attention and interest, as during the gale last Thursday it touched 55 m.p.h., the highest wind, we believe, to have been registered in the inland counties for sixty years.

### Hendon Aerodrome.

DURING the week the Valkyries have been out every day with the exception of two very stormy days at the opening of the week. At least 10 miles per day otherwise is accomplished for demonstration purposes, at which excellent progress is being made by the different pupils, Mr. Benson being particularly apt and promising to get well on to official recognition as a flyer in record time. Business is also promising, as besides minor transactions one of the big three-seater Valkyries has already found a purchaser. The small type one-seater during the week has surpassed all the expectations of its designer, this little flyer taking up quite easily a passenger with enough petrol on board for two and a half hours' flight, and then with the throttle of the 30-35-h.p. Green engine less than half open. Naturally there are great rejoicings at Hendon. This week-end a new big three-seater will be coming off the stocks, and then it is hoped that the management will be better able to cope with the demand for passenger trips, which is apparently on the increase daily.

### Captain Dickson Better.

IT is with the sincerest pleasure we are able to announce that Captain Dickson is now well on the way to convalescence, and that his complete recovery is now only a question of days. It is to be hoped that it will not be long before he is back in England, and that the British Government will avail themselves of the services of this distinguished officer, who has had such extensive experience in flying, and who is amongst the most expert aviators existing. In practical work probably no man is more fitted to take a—not to say *the*—leading part in the development of the "fourth arm" in the British Army.

### Progress by Mr. de Havilland.

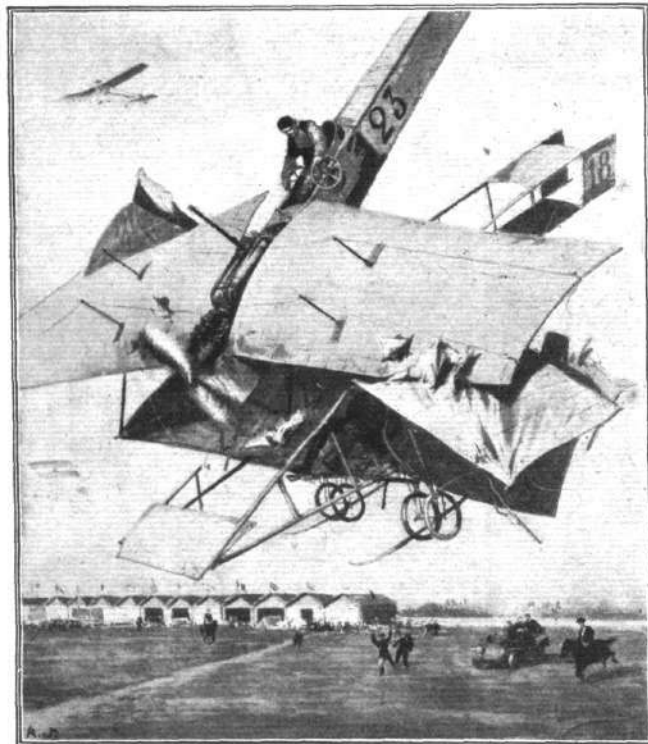
A NOTE to hand from Mr. de Havilland, at Newbury, states that he has been making very satisfactory progress with his biplane. In all, the machine has flown between 30 and 40 miles, and the designer is now feeling quite at home in the air. During last week the machine was idle through the breaking of a connecting-rod, which occurred when the machine was about 50 ft. off the ground. Mr. de Havilland had, fortunately, just previously been practising gliding flight, and so had no difficulty in bringing his machine down safely.

### Formby to Southport by Aeroplane.

REPEATING his success of a few weeks ago, Mr. H. G. Melly on Monday week succeeded in flying his machine from Formby, where he usually practises, to Southport and back again. A little after 10 a.m. he set off, and within half an hour he had landed a little south of the pier. His landing was only witnessed by a few people, but the news quickly spread, and in a very short time the Blériot machine was surrounded by a large crowd. Mr. Melly, however, did not remain long at Southport, but returned to his starting point, flying low and very steadily.

### Profits at the Irish Meeting.

IT is very satisfactory to notice that according to a statement by the secretary the actual surplus resulting from the flying meeting at Leopardstown on August 29th and 30th was £400.



**FIRST COLLISION IN THE AIR.**—As the mishap to Capt. Bertram Dickson, on his Henry Farman, when M. Thomas, on his Antoinette, dashed into him from above, at Milan, appeared to A. Beltrame, an Italian artist. This picture appeared in *La Domenica del Corriere*.



### New Forest Aviation School.

INCLEMENT weather throughout last week precluded all possibility of practice at the New Forest School, incessant rain and occasional heavy squalls of wind rendering the open heath extremely dreary and unattractive. Climatic conditions this week have improved somewhat, and on Wednesday morning Mr. Barrington Kennett was able to get out for a couple of hours. Fortunately the grounds drain rapidly, and effects of the recent abnormally heavy rainfall are hardly perceptible. Other pupils who went away for a few days have now returned, and considerable activity once more prevails.

### Testing Clarke Propellers.

DOUBTLESS many of our readers will be interested to hear that a Clarke propeller was recently tested by Messrs. Vickers Sons and Maxim on their propeller testing plant at Barrow. From the description of this testing apparatus, which appeared in these pages some time ago, it will be remembered that it was chiefly designed for propellers of dirigible balloons, and is therefore somewhat too large to allow an aeroplane propeller to rotate it at anything approaching the designed speed. We understand, however, that the propeller to which we have referred showed an efficiency of 71·8 per cent. at a speed corresponding to over 40 per cent. slip.

### The Aerocaphe in England.

THOSE of our readers who have given attention to the question of aeroplanes designed to rise from the surface of the water will be interested to hear that M. Roger Ravaud has recently arrived in England with the intention of pursuing his experiments at Shoreham or some other suitable place in the neighbourhood of Brighton. M. Ravaud will commence with the Fabre marine aeroplane, which was illustrated in our issue of July 16th last, but he hopes to be testing before long both an aerocaphe and a motoscaphé. The former is an aeroplane designed to rise from the water, while the latter is a "skimmer" with an aerial propeller, and M. Ravaud asserts that with a motor of 100-h.p. he can attain a speed of 95 kiloms. (59 miles) an hour. He will be pleased to show and demonstrate his machines to anyone interested.

### A Record which was Not!

It is a pity some of our French confrères do not glance occasionally at the list of official records on the last page of *FLIGHT*, as it might have prevented an unnecessary waste of flowery language over the so-called "world's record" made by Leblanc at St. Louis on Saturday. Using the 100-h.p. Gnome-engined Blériot, built for the Gordon-Bennett Cup, he covered a mile in 53 secs., representing a speed of 67·92 miles, or 109·3 kiloms., per hour. This has been hailed by the French as a "world's record," calmly ignoring the fact that at Lanark J. Radley did the mile in 47½ secs. at a speed of 75·95 m.p.h., which, after all, is just a little better than the *stupéfiante performance de Leblanc*.

### Simms Magnetos, &c., under the Southern Cross.

WE are informed by the Simms Magneto Company, Ltd., that they have made an arrangement with Messrs. Bennett and Wood, Ltd., by which the latter firm will control the sale of the Simms manufactures throughout Australia, New Zealand and Tasmania.



Mr. Graham Gilmour's Blériot flying over the Hanriot monoplane at Brooklands.

### NEW RECORDS PASSED.

AT its last meeting the Aviation Committee of the Aero Club of France officially passed the speed records set up by Morane and Aubrun at Berdeaux. They are as follows:—

#### Distance Records.

Kiloms.			h.	m.	s.	Kiloms.			h.	m.	s.
30	Morane	...	0	19	32	80	Morane	...	0	33	5
40	"	...	0	26	12	90	"	...	0	59	52½
50	"	...	0	32	48½	100	"	...	1	6	39½
60	"	...	0	39	32½	150	Aubrun	...	1	43	19½
70	"	...	0	46	19½	200	"	...	2	18	30½

#### Time Records.

1 hour	Morane	...	90	kils.	3 hours	Aubrun	...	252½	kils
2 hours	Aubrun	...	167½	"					



AVIATION ON SALISBURY PLAIN.—The school buildings of the British and Colonial Aeroplane Co., Ltd., the builders of the "Bristol" aeroplane, with which Capt. Bertram Dickson, during the recent Army manoeuvres, carried out some fine flights.



## PARIS TO LONDON BY AIRSHIP.



M. Clement, on left, and M. Baudry, who piloted the Clement-Bayard airship from Paris to London on Sunday, in the car of the airship immediately after landing on Wormwood Scrubbs outside the huge *Daily Mail* airship shed erected last year for her reception.

AFTER patiently waiting for two years, M. Alphonse Clement has achieved his great ambition and piloted an airship from Paris to London. His original vessel was purchased by the Russian Government before the long voyage could be made, and when M. Clement had his new airship ready he was asked by the French Government to delay his departure until after the autumn Army Manœuvres. Hence the delay; but for such a long time had the trip been spoken of that Londoners had become just a little incredulous as to the possibility of seeing the airship arrive, and when on Sunday morning

a telegram from France announced that the airship had actually started on its long trip many people hardly expected to see the great dirigible over the Metropolis so speedily. It left its shed at Lamotte-Breuil at eighteen minutes past seven and headed for Compiègne, where it was turned in the direction of Amiens, which was passed at 8.20. Then the Northern Railway was followed to Abbeville, from where the coast was kept in sight up to Boulogne. Leaving the French coast, the airship was turned in the direction of Folkestone, the steersman being assisted in his task of crossing the Channel by the French torpedo boats which were acting as an escort. Naturally, with a following wind, the airship was faster in speed than the torpedo boats, and in order that they should not be lost sight of, M. Clement had the airship turned in a circle once or twice. A little more than an hour had passed after leaving the French coast when Folkestone was seen to be below, and then the railway once more came into play to direct the airship on her way to London. Ashford and Tonbridge were prominent landmarks, and from the latter point the airship was turned sharply to the right, and sailing on over Croydon and Brockley, arrived over St. Paul's Cathedral soon after one o'clock. Over the Metropolis the Thames served as a guide to the voyagers as far as Westminster Bridge, where a turn was made across Hyde Park and so on to the shed erected by the *Daily Mail* on Wormwood Scrubbs in August of last year. Ropes were thrown out, and the landing quickly accomplished by the aid of a squad of Guards under Lieut. Walker. They performed their work carefully and steadily, and within a short time the car of the airship was on the ground, and Mr. Harvey Du Cros and others were welcoming M. Clement to England. The great curtain of the airship garage was pulled open, and the airship slowly glided into safe harbour. Then the seven occupants of the car descended, and were greeted by their friends. Those who made the journey were M. Alphonse Clement, the designer and builder of the airship, Mr. Willie Du Cros, representing the Parliamentary Aerial Defence Committee, M. Sabathier, the chief engineer, MM. Baudry and Le Prince, pilots, and MM. Delassier and Daire, mechanics. During the afternoon the airship was visited by a large number of prominent people, among others being Mr. Arthur Lee, M.P., Chairman of the Parliamentary Defence Committee, and Mr. Henniker Heaton, M.P. On Monday afternoon M. Clement had to return to Paris, but he was back again on Wednesday evening arranging for the official tests of his airship by the War Office, and it was hoped that these would commence on Friday.

The following is the log kept by M. Sabathier:—

Leaving the shed at Lamotte-	a.m.	Folkestone	...	11.20
Breuil (near Paris)	...	Ashford	...	11.44
<i>Lâchez tout</i> (let go)	6.55			p.m.
Starting the engines—naviga-	7.8	Sevenoaks	...	12.39
tion begins	7.10	Above London	...	1.0
Over Montdidier	7.48	London Bridge	...	1.10
Amiens	8.20	Descent at Wormwood		
Abbeville	9.0	Scrubbs	...	1.36
Boulogne	10.15	Inside the <i>Daily Mail</i> shed		1.51

## THE FAILURE OF THE

## TRANS-ATLANTIC VOYAGE.

HOWEVER desirous one may be of seeing the Atlantic crossed by a dirigible, yet it must be frankly stated that it was not seriously anticipated, except perhaps by those connected with the expedition, that the Wellman airship would ever get across to England. Apart from the mere contingencies of the weather, &c., there are many things which, at the present stage of aeronautics, militate against a successful conclusion to such an undertaking. Nevertheless, at 8 o'clock on Saturday morning Mr. Wellman announced that everything was ready, and that the conditions were favourable. He therefore climbed into the car with his companions, including Capt. Murray Simon (the pilot), Mr. Melvin Vaniman (the engineer), Mr. Jack Irwin (the wireless operator), and Messrs. F. B. Aubrey and Louis Lond (mechanics), and in the presence of an enthusiastic crowd the airship rose from her resting place at Atlantic City and was headed out to sea, where the ship was rapidly enveloped in a thick fog. During Saturday numerous messages were received by wireless from the airship, and all seemed to indicate that good progress was being made, and that everything was going well, and on Sunday morning the vessel was reported off Nantucket Island, when Mr. Wellman's message was "Going O.K." Naturally some anxiety was felt after this, owing to lack of news and the fact that the westerly wind had very much increased in

strength. No further definite news was heard of the airship until Tuesday afternoon, when a wireless message from the R.M.S. "Trent" announced that, in answer to distress-signals by the airship, she had stood by and rescued the crew, the dirigible being afterwards abandoned. When it became apparent to the crew of the airship that it was hopeless for them to continue, preparations were made for launching the lifeboat carried beneath the car. The "America" was brought down close to the sea, and the lifeboat released, and into it all the crew made their way. Relieved of the weight of the boat the great airship rose high and soon disappeared. The airship was abandoned in latitude 35°43 north and longitude 62°18 west. The lifeboat was safely picked up by the "Trent" and a wireless message from Mr. Wellman states that all the crew are well after their thrilling experience. One must heartily congratulate both the *Daily Telegraph* and the *New York Times* for their enterprise in organising the great attempt and also Mr. Wellman and his gallant companions in their escape from a situation which might easily have had more serious consequences.

According to Mr. Wellman the fatal mistake in the design of the airship was the heavy equilibrator which dragged down the ship and interfered with the steering.

## PARIS TO BRUSSELS AND BACK.



**PARIS-BRUSSELS AND BACK BY AEROPLANE.**—M. L. Wynmalen and his passenger, M. Dufour, on the Henry Farman immediately before the start for Brussels from Issy.

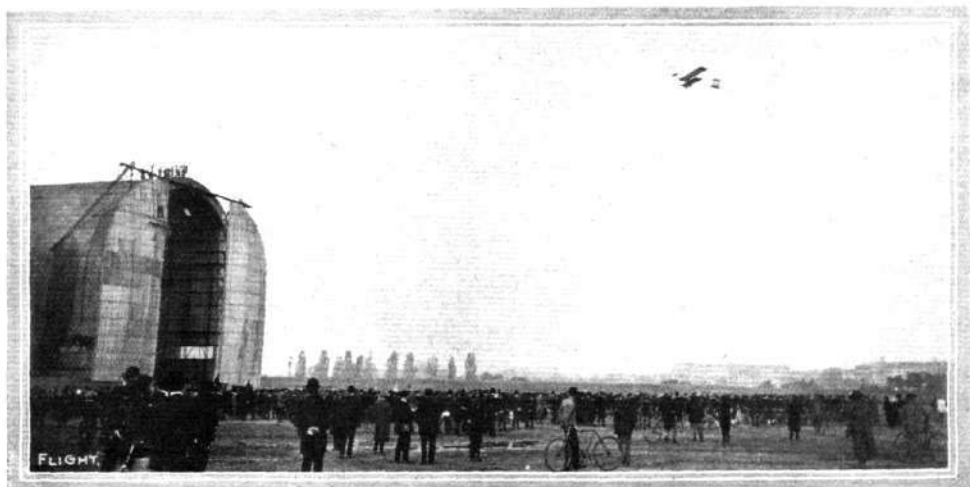
TRULY it will be hard luck if after all Wynmalen is not awarded the £4,000 prize offered by the Automobile Club of France for a flight from Paris to Brussels and back. In that eventuality, however, he will only have himself to blame, for the rules very distinctly reiterate in several places that the onus rests with the competitor to see that an official representative of the club is present

to vouch for the start for Brussels and the landing there, and the start and finish of the return journey. This formality Wynmalen



**PARIS-BRUSSELS FLIGHT.**—M. Legagneux and his passenger, M. Martinet, ready to start for Brussels from Issy on their Henry Farman.

neglected to see carried out, and so the A.C.F. are now debating the point as to whether they can give him the prize. Whatever the result, Wynmalen on Sunday morning made his start from Issy for Brussels on his Henry Farman, accompanied by his friend, Louis Dufour, while later in the morning Legagneux, at the wheel of a similar machine, with Martinet as a passenger, followed in his tracks. Wynmalen



**PARIS-BRUSSELS FLIGHT.**—Legagneux leaves Issy for his journey to Brussels on his Henry Farman.

got away at 7.30, and he arrived at Brussels at 1.30, having made two stops on the way, one of half an hour at St. Quentin, and the other of ten minutes at Pontacelles. Legagneux did not leave Issy until just on 9.30 and he arrived at Brussels just as Wynmalen was starting on his return journey at 2.20. The latter, during the afternoon, got as far on the way back as St. Quentin, and there decided to spend the night. Early next morning he was astride and at 7 o'clock was well on his way towards the French capital. Heavy mists, however, made the journey anything but an easy one, and at Tracy Le Val a landing was necessary in order to fill up the petrol-tank. After a stop of half an hour the aeroplane was once more in the air and got as far as Meux, where another 40 minutes stop was made. Then half an hour was spent in completing a further stage to Orry la Ville. The next stopping place was at Bagatelle, and from there Issy was reached at a few minutes before a quarter past twelve, thus the double journey had been made well inside the limit of 36 hours. The annexed table shows the times of landing and restarting at the various stopping places, from which it will be seen that the total time occupied was 27h. 50m. 28s., while deducting the duration of the stops, the actual

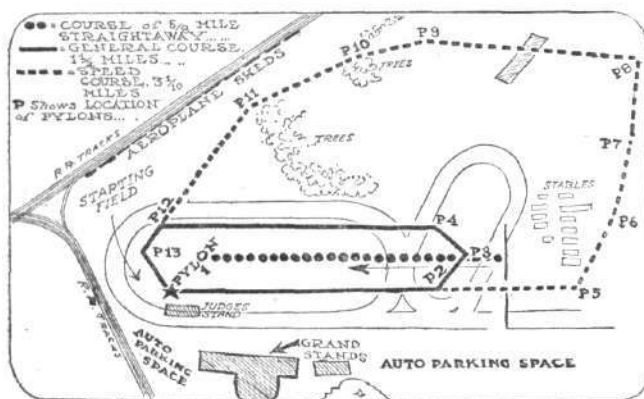
time spent in flight was 11h. 25m. 28s. The total distance between the Belgian and French capitals is 190 miles, so that the double journey is 380 miles.

Legagneux started back on the following morning, but only got as far as St. Quentin, where he damaged his machine, and in view of the delay necessary to obtain the spare parts Legagneux found it necessary to abandon his attempt.

## Time-Table of Wynmalen's Flight.

Outward Journey.			
Arrive.	Leave.	Arrive.	Leave.
Paris (Issy) —	7.33.30 a.m.	Pontacelles	12.55 p.m. 1.5 p.m.
St. Quentin	10.15 a.m. 10.45 "	Brussels	1.30 " —
Homeward Journey.			
Brussels	— 2.19 p.m.	Orry-la-Ville	9.55 a.m. 10.25 a.m.
St. Quentin	5.5 p.m. 6.40 a.m.	Bagatelle	11.35 " 12.2 "
Tracy-le-Val	7.32 a.m. 8.5 "	Paris (Issy)	12.13.43 p.m. —
Meux	8.45 " 9.25 "		

# AMERICAN NOTES.



Plan of Belmont Park, New York, as arranged for the International Aviation Meeting commencing to-day (Saturday).

## Grahame-White Over White House.

DURING his visit to Washington last week Mr. Claude Grahame-White, on his Farman biplane, flew over to White House, and landed in the roadway by the Army and Navy Building, where he was received by General Allen and Admiral Dewey. The arrival of the aviator was the signal for work to be suspended, and a crowd of several thousand persons quickly assembled to welcome the British flyer. Afterwards Mr. White flew back to the Bennings race track, but in alighting the planes of his machine were somewhat seriously damaged.

## Radley has a Mishap.

WHILE testing his Blériot monoplane at Belmont Park on the 13th inst., in preparation for the Gordon-Bennett competition, Mr. James Radley, one of Great Britain's representatives, met with a mishap which it is feared may put him out of the running. He had made a good flight, and was returning to earth, when his machine was caught in an eddy of wind and dropped suddenly. In the shock of the sudden landing the pilot sustained injuries to the head and shoulders. It is to be hoped that he will make a rapid recovery, in time to take his place in the Gordon-Bennett team when they line up next Saturday.

## Height and Vertical Speed Record.

THE great advances made with the height record recently have led the Aero Club of France to put forward for consideration at the meeting of the Federation Aéronautique Internationale next week that a new series of records should be instituted. It is suggested that in future aeroplanes should be timed while ascending, the times being taken for every 500 metres, and the records recognised for vertical speed records of multiples of 500 metres.

## A Race Round the Statue of Liberty.

IN connection with the flying meeting at Belmont Park which opens to-day, Mr. Thos. F. Ryan, the well-known financier, has offered a prize of £10,000 for the aviator who makes the best time during the week for the journey from Belmont Park round the Statue of Liberty and back again.

## The American International Meeting.

IN our last issue we gave some details regarding the International Flying Meeting which opens at Belmont Park, New York, to-day (Saturday), and we are now able to supplement this with the accompanying plan of the course, together with a list of the prizes. These will prove useful to our readers in helping them to identify the events referred to in the cable accounts of the daily proceedings. In addition to these prizes there are several others, including one for the best time made round the Statue of Liberty, mentioned above, and another of £1,000 for the aviator who first gains an altitude of 10,000 feet. Among the English competitors will be Messrs. C. Grahame-White, J. Radley, Alec Ogilvie, and W. E. McArdle. America is to be represented by Curtiss, Brookings, Hamilton, J. A. Drexel, and Weymann, while the French flyers will include Jacques de Lesseps, Hubert Latham, Leblanc, Aubrun, and Simon.

Gordon-Bennett Trophy, winner also gets	5,000
Gordon-Bennett elimination, three prizes total	1,500
Totalisation for duration	6,000
Totalisation for distance	3,000
Grand speed	4,500
Grand altitude	3,000
Fastest flight, 10 kilom.	3,000
Passenger carrying	1,600
Cross-country	1,700
Cross-country passenger carrying	2,000
Kilometre straightaway	2,550
Daily totalisation of duration, eight days, \$850 each	6,800
Hourly altitude, thirteen hours, \$400 each	5,200
Hourly distance, seven hours, \$400 each	2,800
Hourly speed, five hours, \$400 each	2,000
Michelin prize	4,000
Mechanics' prize	1,000
Total	55,650

Another matter which the French Aero Club propose to bring before the meeting of the F.A.I. is the regulation of height records. It is proposed that the height should be measured by means of a barometer, although the actual height reading shown by the barograph would not be used. It is suggested that the barometric depression should be converted into height by a formula based on the tables of Radau. Further it is proposed that records should not be officially recognised unless they are at least 100 metres better than the previous one.

# FOREIGN AVIATION NEWS.

## Three Biplanes Over Paris.

ALTHOUGH the mere sight of an aeroplane passing Paris is now nothing extraordinary, yet on Saturday last Parisians had the novel sight of seeing three biplanes pass over their city, and of the trio, one, a Henry Farman machine, with Legagneux at the wheel, had a passenger (Martinet) on board. Of the other two, one was a Henry Farman machine piloted by Wynmalen, while the other was Maurice Farman on one of his own machines. Legagneux twice circled round the Eiffel Tower at a height of about 600 metres, while Wynmalen manoeuvred over the Grand Palais.

## Hanriot School at Rheims.

VERY successful flights have been made recently by Xavier Martin on his Hanriot monoplane fitted with a Chenu motor. On Monday morning he was flying for 1 hr. 35 mins. at various heights ranging up to 300 metres. Prince Eristoff, to whose monoplane *de luxe* we referred last week, has made several very satisfactory trial flights.

## Train Monoplane at Mourmelon.

CONTINUING the success with which he has met during the last week or two, Train, on his little monoplane, which has a motor of only 20-h.p., was flying for 55 minutes over the country round Chalons, on Sunday afternoon, at altitudes ranging up to 400 metres.

## Notable Pupils at the Antoinette School.

SUNDAY afternoon was a busy time at the Antoinette School at Mourmelon. Count Robillard, after testing several machines, took his friend, Count de Prunel, for a short trip, and then Prince Alphonse, of Orleans-Bourbon, who has been receiving instructions at the school, made his first solo flight. This was completed successfully, the Prince turning his machine in masterly fashion.

## A Collision at Etampes.

AN unusual incident occurred on Saturday afternoon last at the Blériot School at Etampes. Beart, one of the pupils there, had successfully made two of the qualifying flights for his pilot's certificate, and had very nearly completed the third, when, just as he was about to land, he was confronted by another pupil, Brege. Neither were able to do very much except stop their engines, and when they were about 10 metres above the ground the two machines came into collision. Fortunately, neither of the aviators sustained any more serious injuries than severe bruises.

## Trials with the Parseval Hydro-Aeroplane.

ON Saturday last the big hydro-aeroplane designed by Major Parseval was taken out for trial on the Plau at Mecklenburg. Rising to a height of 225 ft., the machine flew for between 4 and 5 kiloms. very satisfactorily, but then suddenly turned over and fell into the lake. Fortunately the pilot was able to get clear, and was picked up uninjured by a boat.

## A Powerful Tellier Monoplane.

ONE of the latest machines to be tested at the Tellier School at Etampes is fitted with a 60-h.p. 6-cyl. Panhard motor, and at its initial trials on the 13th inst., with Dubonnet at the wheel, it flew over the country for about 20 kiloms., and although there was a fairly stiff breeze blowing, a high speed was maintained. The height ranged from 80 to 100 metres, and the flight was terminated by a splendid *vol plané*. On the following day another fine flight was made with Becue in charge.



## "Peggy the Aeronaut."

QUITE a readable tale is this of Mr. J. L. J. Carter's, being brightly written, though with a serious vein underlying the main story. This seriousness is in the emphasis which the author lays upon the apathy he considers to be displayed by this country in the matter of an aerial navy, the purpose of the book being apparently to awaken interest in the necessity for the adequate equipment of Great Britain in obtaining the supremacy of the air. There is no lack of incident about the plot, which carries the reader on with unflagging interest to the end. Peggy is a spirited and adventurous maiden who is able to pilot an aeroplane like a born aviator, and who makes light of flying from London to Larne and back in a machine she has but set eyes upon twice before. But then this exploit is to win a prize for the inventor, Justin Burnet, who has saved Peggy's life, and who is prevented from taking the pilot's seat owing to the machinations of Peggy's wicked German step-father. And now comes out the real theme. For Germany, having discovered that at last Britain has an efficient aeroplane, and is

## Rougier Brothers Produce a Monoplane.

FROM Marseilles comes the news that the Rougier Brothers have built at St. Antoine a monoplane, which they will be trying shortly. In general design the machine is very similar to the Santos Dumont Demoiselle, and it will be driven by a 25-h.p. motor having two cylinders opposed horizontally.

## Maurice Farman at Buc.

ON the 14th inst. Maurice Farman was flying on his biplane for 20 mins., during which he passed over the fort at Buc, and also over Guyancourt. Subsequently he made similar trips with passengers, among the latter being René de Knyff, Capt. Taron, and others. One of his pupils, named Fraser, was taken for a jaunt of the same duration on Saturday afternoon. Capt. Byasson was flying for a quarter of an hour daily during last week, but on Saturday afternoon he left for Chalons. Weymann paid a visit to Buc on Friday for the purpose of testing a Farman machine with which it is proposed to attempt a flight from Paris to the Puy de Dome.

## A New Biplane at Rheims.

A NEW aviation school has been established at the Champagne Aerodrome by an engineer named Leyat, who, on the 13th inst., was testing his new racing biplane. A stiff breeze was blowing, but in spite of this, 10 kiloms. were traversed at a good speed, and afterwards Leyat gave a lesson to one of the pupils.

## Military Aviation in Germany.

ON Monday afternoon three aeroplanes succeeded in flying from Johannisthal to Doeberitz Camp, situated between Berlin and Potsdam, the distance being 32 kiloms. Illner was the first to get away, and he completed the course in 35 minutes. He was followed by Jeannin and Brunnhuber, the former on a German-built Farman and the latter on a French Farman, and both of them completed the course in 31 minutes. Each aviator was accompanied by a military officer, and the tests were carried out under the observation of the military authorities. On Tuesday Mente and Thelen, on Wright machines, and Lindpaintner, on a Sommer, had to carry out similar tests, while on Wednesday all the flyers were inspected by a Military Commission which has been appointed to choose the aeroplanes for use in the German Army.

## Da Zara Flies over Padua.

STARTING from his flying ground at Bovolenta, and carrying the Countess Salom as a passenger, De Zara, on Monday morning, flew over Padua and then back to the flying ground. In the evening he repeated this trip, rising to a height of over 1,000 metres, and covering altogether a distance of about 4 kiloms., while afterwards he made another flight with a passenger. These demonstrations have aroused an enormous amount of interest in the town, where the municipal authorities have decided to present the aviator with a gold medal.

## A Blériot for the Italian Army.

DURING Saturday afternoon the Italian officer Ginocchio was flying at Etampes for two hours on his two-seated Blériot with a passenger, the height ranging up to 500 metres. On the previous day the machine had been tested by Lemartin, who was aloft for an hour and a half, and flew three times over the town of Etampes, his greatest height being about 800 metres.



likely, therefore, to become a dangerous power, decides to take strong measures and attack London by dirigibles before Britain has time to build machines. Peggy it is who discovers the plot in time (by means of the Count, her step-father), and to Peggy's lover is assigned the rôle of England's saviour. Accompanied only by a mechanic and an energetic British aristocrat, Justin goes forth to tackle with his single aeroplane no less than ninety Zeppelins. His encounter with them over the North Sea, his victory, and his subsequent rescue from the sea by Peggy herself *in an aeroplane*, when his own machine is brought to grief in the mêlée, make quite exciting reading. Needless to say his bravery saved England from disgrace and downfall, and we presume, in gratitude, the Government purchased his patents! Whether the policy of the plot is justifiable or not, the story goes with a swing, and an hour or two can be very pleasantly whiled away in following the adventures of Peggy the Aeronaut, even although many of them are far-fetched. The book has an introduction by Major B. Baden-Powell, and is dedicated by the author to Colonel H. S. Massy.—(Everett and Co. Price 1s. and 2s.)



# CAN WE FLY FASTER FOR LESS POWER?

SUGGESTIONS FOR WINNING THE "DAILY MAIL" £10,000 PRIZE.

## PART IV.—Summary.

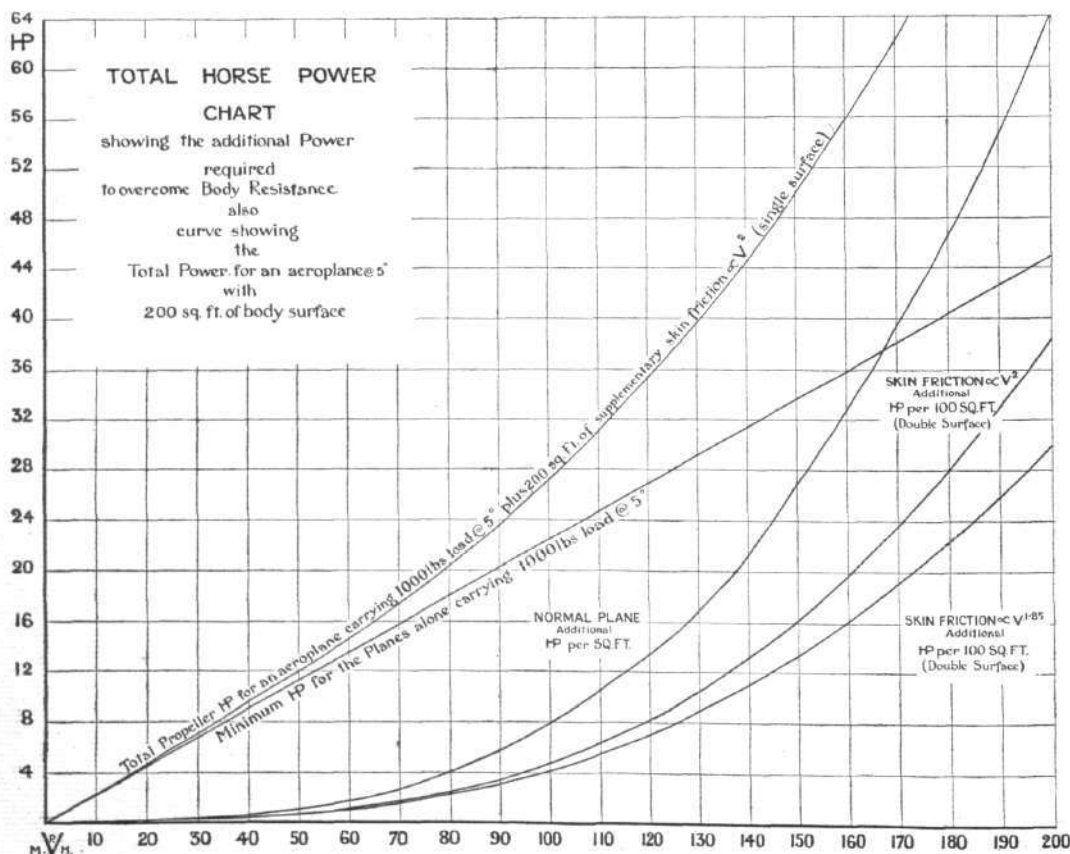
THREE preceding articles that we have devoted to this subject have dealt, respectively, with the power required to propel cambered planes having different angles, the resultant lift that is provided by such planes in flight, and the thrust in terms of the load supported that is required to maintain the necessary velocity. We concluded with a numerical example in which we sought to show that a stated load could be carried at higher speeds on a comparatively flat plane with the expenditure of less power than is necessary under the present conditions of flight where the speed is low compared with what, in course of time, we believe it will become.

Throughout these articles we have drawn attention to the angle of 5°—as represented by the angle of deflection of a cambered plane—as the angle of least resistance, and from the diagrammatic sections of planes that accompanied the first part of the article it will have been observed that such a plane is nearly flat. We have also repeatedly stated, in order to avoid confusion, that the charts have related to the power expended on the propulsion of the planes alone, and that the resistance of the body of a practical aeroplane, together with the resistances of the struts and the supplementary surfaces that do not assist in the carrying of the load, must be reckoned as an "extra" to be overcome by additional horse-power according to its magnitude. Although we brought that series of articles to a natural conclusion, as stated, it is not inappropriate to make a few further remarks by way of a summary, more particularly as we have prepared another chart that may, we think, add to the interest of those who have followed our arguments from the beginning. In this chart we have sought to combine some of the graphs that have already appeared separately on other charts, in order to emphasise more clearly one of the outstanding practical

lessons that this investigation teaches, viz., that in high speed, body resistance must be reduced to an absolute minimum.

We have shown already that the resistance of the planes alone, expressed in terms of the load, is independent of the speed of flight if the law of skin-friction varies as  $V^2$ , which it may be said to do without serious error, at any rate up to speeds in the order of 90 miles an hour. Such being the case, the power required to propel, say a load of 1,000 lbs., is directly proportional to the speed of flight and the conditions of minimum resistance, which we have supposed to be represented by a 5° plane, the power in question can be shown graphically by a straight line as it is on the accompanying chart. This line represents the absolute minimum power required to support a load of 1,000 lbs. in flight, and it assumes that the load itself is entirely located inside the planes. It is, however, quite immaterial to the argument if the load is carried, as it necessarily is in an actual machine, in a body outside the planes, where it acts as an obstruction on its own account, since the effect of the load, that is to say the loading in lbs. per sq. ft., is itself essentially confined within the planes.

If the planes are made smaller, the effect of the load, that is to say the loading, will be increased, and the flight speed will have to be increased in order to obtain the necessary support. The amount of resistance that is thus apparently taken off in the first instance in the form of surface is put back again in the second instance in the form of speed, and if the law of minimum resistance to flight holds good, these amounts will be exactly equal to one another. As far as the support of the load is concerned therefore, the plane could be designed quite independently of the body, and the effort of designers should be to obtain such a speed of flight for their machines as will enable them to use planes of minimum resistance for the support of the load on a reasonable extent of surface. We have stated our





reasons for suggesting that in the light of modern theory the camber of such a plane would be represented by an angle of deflection of  $5^\circ$ .

The outstanding feature that seems to be derived from this is rather reminiscent of the adage of the pence and pounds, for it would appear that the maxim of the designer ought to be "take care of the extra resistance and the planes will take care of themselves." Now the extra resistance is of two kinds—normal pressure and skin friction—and if the coefficient of skin friction that we have adopted is anywhere near the mark, it makes the resistance due to normal pressure three or four hundred times as great, surface for surface, as that due to skin friction itself. The exigencies of diagrammatic illustration scarcely permit of this enormous difference being sufficiently clearly illustrated in the accompanying chart, where the two curves representing the power expended in forcing a normal plane through the air and that in overcoming skin friction are superimposed. In the case of the normal plane, the graph shows the additional power expended per one square foot of flat surface facing the wind; in the case of skin friction the corresponding graph shows the power expended per hundred square feet of double surface edge-on to the wind. It is convenient to compare the double surface because otherwise there is a liability to error when calculating for the resistance of such members as the rudder, panels, and other supplementary surfaces that have their size stated in single surface area although they are actually double surface resistances.

A cylindrical body which has an inside as well as an outside, only presents a single surface to the wind, so that for such members the allowance for skin friction as represented by the graph would be per 200 sq. ft. If the graphs for normal pressure and skin friction are compared, it will be observed that the relative figures for corresponding speeds range from about 2 to 1 to  $1\frac{1}{2}$  to 1, which allowing for the initial units of comparison, shows that the normal pressure is from 200 to 170 times as great as double surface skin friction and from 400 to 340 times as great as single surface skin friction. These latter values are those that apply in the case of bodies of stream line form, and it is quite evident that immense advantages are to be gained by enclosing the principal masses inside a suitable cigar-shaped casing. Even allowing for the fact that the rounded surfaces presented by engine cylinders and other members may already be the means of effecting a very important reduction in the apparent amount of normal pressure that is experienced by the superstructure of a modern aeroplane, there nevertheless must remain great opportunities for the reduction of the total resistance experienced by a machine in flight. Even if we allow that the ratio of the resistances in actual practice is reduced to a half of that suggested above, this still leaves 200 sq. ft. of surface wherewith to enclose every square foot of cross section without augmenting the net resistance in the line of flight.

We do not necessarily suggest that the time has yet come for the general construction of aeroplanes with more or less elaborate bodies such as this reasoning tends to indicate, but it will be remembered that one purpose of this article is to make suggestions for the winning of that very valuable £10,000 prize offered by the *Daily Mail*, and it seems to us only proper to emphasise a point of this nature

or the benefit of those who are interesting themselves in this particular aspect of the subject. It is one that we fear is a little apt to be overlooked, in spite of the fact that quite a number of people profess to regard skin friction as a negligible quantity altogether.

There has been a tendency on the part of some manufacturers to disregard the stream line form in the construction of certain members of the framework that have hitherto been characterised by very carefully worked sections. Short Bros., for example, exhibited a biplane at the last Olympia Show in which the main struts were only modified from the absolute rectangular section by the chamfering of the edges, and we observed that their propeller blades were also of very blunt form, as we had occasion to remark at the time. Now the effect of normal pressure on very narrow surfaces such as are, at the best—or the worst—presented by such pieces as struts and propeller blades is in an altogether different order of magnitude to that experienced by surfaces in which the height and the width are more nearly equal. This is due to the relative amount of leakage that takes place over the edges, and we can well believe that in such cases the difference between a roughly chamfered edge and a carefully worked stream line form is almost negligible; in other words, it becomes a question of commercial economy to stop short at that which is practically effective. In the case of the principal masses representing the load carried by the aeroplane, of which the pilot and the engine are the most important, the same reasoning does not apply, and the advantage of enclosing such parts in a proper stream line body should by no means be overlooked.

By a stream line body we merely mean a body that converts normal pressure into skin friction, and we do not necessarily pin our faith to any particular lines; constructional convenience must necessarily be studied, and on the whole this consideration generally points to the use of something that is rather blunt nosed. In any case, it is well known that the entry can be bluffer than the run in stream line forms for air as well as those for water.

Having regard to the diverse character and direction of the relative winds that are encountered in flight, it has always seemed to us that the actual presence of a materially sharp entering edge is of a very questionable advantage, and we are rather inclined to a preference for something in the nature of a semi-circular section as likely to be best suited for practical conditions of flight. It must after all be remembered that a sharp-edged section pointed in an arbitrary direction relative to the line of flight is correct only when the relative wind is blowing in the same direction, and is probably rather inefficient when the relative wind has an oblique trend; it is therefore for this reason that we have always been rather favourable to the adoption of a compromise in the form of a leading edge for flight sections, and it appears to us, as we have said, that the semi-circular, or in the case of the body, the hemispherical nose, is likely to have the best degree of all-round efficiency as well as being structurally convenient. The hemisphere presents the same conditions of entry to any relative wind within a wide range of obliquity, and having regard to the various experiments that have been conducted in aerodynamics and touch indirectly upon this subject, it appears to us that the form suggested has much to commend it.

## CORRESPONDENCE.

\* \* The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in FLIGHT, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

### SUGGESTIONS RE BROOKLANDS.

[827] I should like, through the medium of your columns, to make some suggestions which I consider would be an improvement at Brooklands.

First, would it not be possible for the authorities in charge to arrange that a track should be made across the present sewage farm, somewhere at the back of the hangars, and so enable circular flights to be made, without the risk of having to cross over the sewage farm?

Secondly, I should suggest that a board should be placed in a conspicuous place, giving the time of departure of trains to London.

Thirdly, I suggest that each lessee of a hangar should be entitled to a limited number of tickets as passes, for firms and others who are contracting for work, thus allowing them to enter the track free of charge. As it is now, they are charged for at the gate, unless they actually own a hangar or are members of Brooklands.

Only recently Messrs. Grahame-White asked me to have some work done to their plane on a Saturday afternoon, and I was charged a guinea for two workmen to enter the grounds.

I applied on behalf of Messrs. Grahame-White to have the money refunded, but without avail.

Fourthly, in the interest and safety of those practising flying at Brooklands, it would be well to have proper rules framed and adhered to, preventing machines running over the ground in different directions, which is only inviting trouble, and probably serious accidents.

Lastly, I suggest that something should be done to obviate the dust nuisance, and prevent, as far as possible, engines being started up where there is no grass, and near the hangars. The dust caused by so doing is very liable to score the cylinder walls, especially with the open exhaust, as most aerial engines are fitted, to say nothing about the inconvenience caused by the dust blowing into the sheds, and covering everything with finely-powdered sand.

Apologising for the space taken up, and hoping that those in authority will consider these few remarks of mine.

Clapham Junction.

W. WINDHAM (Capt).

### SOARING BIRDS.

[828] The question asked by "Wyvern" (letter 618) is really wider than at first sight appears, and properly to deal with the matter would require some pages of your valuable space. Some of the actual data for which "Wyvern" asks I give below, but these figures alone are of limited utility. In order to appreciate them properly it would be necessary to go into the habits and mode of flight of the birds mentioned, and so on. It cannot too often be

insisted upon that data of actual flyers "hang together"—knowledge of a few measurements is as likely to mislead as to help. In any event, supposing we have full and accurate data, it is necessary to approach them in the right spirit. The study of natural flyers is essential for a proper understanding of the principles of flight, but attempts at slavish imitation are likely to lead to disappointment.

There are several different methods of flying exemplified in nature, and we cannot appreciate these in their true perspective unless we are familiar with the natural conditions which limit them or render them possible.

The doctrine of evolution shows that natural flyers are moulded by their environment, that is, they are what they are in order to meet certain conditions of existence with the means at their disposal (which means are, of course, equally the products of past environments). Before slavishly copying their solutions of the problems which they have had to solve, we must ask ourselves whether our aims are the same as theirs, and whether the means at our disposal are similar.

If we approach the matter from this point of view we shall see that although we can in many ways find parallels between the problems before natural flyers and ourselves, we have different means at our disposal for solving them. For instance, no natural power plant is made of such strong material or has at its disposal such concentrated energy as the petrol motor; we can get into the bulk of an eagle many times more power than any eagle can ever possess. On the other hand, although we can make very good wings, we shall never be able to produce a wing with the *all-round* efficiency of the wing of a bat or a bird so long as we are limited to dead matter for our material, and the inability to produce an artificial brain and nervous system as effective as a natural one limits the application of the enhanced power at our disposal.

The foregoing may seem very trite and obvious, but it has been truly said that nothing needs so much insistence on as the obvious.

We shall be well advised to follow natural flyers only in so far as they afford an indication of the first principles which we are endeavouring to discover. Although we could not seek for such principles in a better place than amongst natural flyers, when we have obtained an insight into them, we should proceed to apply them to *our* problems with the means at *our* disposal. The manner in which natural flyers have applied them with the means at their disposal we should always bear in mind, but "gang our ain gait" all the same.

That this method of procedure will lead us very far from the present type of machine I am convinced, but how far the flying machine of the future will follow bird, bat, or insect flight only time will show. Approximate data of certain birds which soar:—

Common Name.	Weight. lbs. ozs.	Surface. sq. ft.	Span. ft.
Golden eagle ...	7 0	6	8
Griffon vulture ...	16 8	9	8
Egyptian vulture ...	4 0	4	4½
Sea eagle ...	7 0	6	8
Common kite ...	1 8	3	4½
Balbuzzard (osprey) ...	3 0	3	4½
Heron ...	3 8	3½	4½
Goshawk ...	0 10	1	2½
Sparrow hawk ...	0 6	¾	1½
Stork ...	5 0	4	6½
Australian crane ...	20 0	7	10

The number of strokes per second naturally varies with circumstances, but it does not exceed three in the case of the large birds, and is normally less.

Surbiton.

OCTAVIUS.

## THREE-BLADED PROPELLERS.

[829] Concerning Mr. Bowles' letter (778) about three-bladed propellers, the earlier Breguet biplane was fitted with one, coupled to a 50-h.p. Renault. The propeller appears, from the post-card which I enclose, to have been built of metal blades riveted to three arms of tubular steel. As to whether any flights were made with this or not, I can't say, but M. Breguet appears to have given it up in his newer machines for the ordinary two-bladed.

Chelsea.

J. R. BLUNT.

## M. BLONDEAU AT BROOKLANDS.

[830] Would you kindly correct an error in FLIGHT which has appeared more than once. M. Blondeau is my partner, and therefore it is not representing things as they actually are to say he flew on Mrs. Grace Bird's biplane. The error arose by my signing the entry for the Neill Cup when M. Blondeau was not in England, and consequently he had to fly in my name.

Brooklands Track, Oct. 16th.

GRACE BIRD.

## AERODROME IN NORTH AFRICA.

[831] Conjecturing many of your readers would be interested in knowing of a flying ground over 5 miles in diameter with a perfect surface, I would mention Lake Sedjoui, immediately behind the city of Tunis, North Africa. This lake has a clay bottom, is never deeper than a foot in mid-winter, and is usually quite dry from April till December. While, of course, the air currents during the daytime are very strong under the Tunisian climate, yet the air is generally calm at night. The bottom is moderately hard, and perfectly smooth. I often cycled across, and used this lake to experiment with a bicycle pulled by a kite. However, nobody crosses it usually, the nights are clear, and there are a number of good automobile mechanics in Tunis. The area of the lake is about 20 square miles, and I do not think such an extent of *absolutely smooth* ground can be obtained elsewhere within forty-eight hours of London, especially free of rent.

Winnipeg, Man.

GEO. H. D. ARMANDARITZ.

## CYCLE AEROPLANE.

[832] I have been taking in your magazine for some time, and find it extremely helpful and interesting. I am rather puzzled at an article I saw in a Patent Agent's magazine, relating to an aeroplane which was propelled by foot. The machine resembled a monoplane with an ordinary bicycle underneath, with the propeller geared from the back wheel. It further stated that someone had flown on it for six miles.

Do you think such a thing is possible?

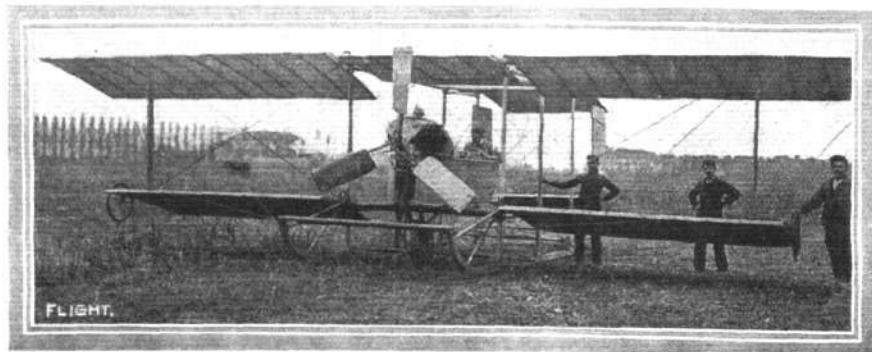
Newcastle-on-Tyne.

C. E. NOGGIN.

[We have not heard of any man ever having flown by his own power on this or any other sort of machine.—ED.]

## THE IDENTIFICATION OF AERIAL VESSELS.

[833] The difficulty of identification of friend from foe in future warfare—when aerial vessels are anticipated to play an important part—seems to have escaped notice. Let us assume that in five years time the crossing and re-crossing of aerial craft will create no more interest than the movements of motor cars do to-day; we shall have become so used to them that interest in their presence will have disappeared. This will probably be the case, so let us further assume that this country is at war, how can we on earth distinguish



The early Breguet machine, referred to in Mr. J. R. Blunt's letter.

friends from foes in the air? The problem is an impossible one to solve, for no distinction will exist, as all aerial vessels present the same aspect when viewed from below. The only way out of the problem is, on the declaration of war, to treat all overhead vessels as enemies.

Sydenham.

G. H. LANE.

## TERMINOLOGY.

[834] I suggest that airmen who drive mono and biplanes be called in future *planers*. It is short and easy to pronounce.

Furness Abbey.

J. H. BOOLDS.

## THE GULL'S TAIL.

[835] Referring to Mr. Best's letter (693), I am sure many aeronautical enthusiasts must have noticed that gulls keep their tails closed except when alighting, and that they possess particular gliding capabilities.

After carefully watching them I constructed several small paper models with crescent-shaped wings and no tail. I found that when the c.g. was well forward and the tips turned up that they possessed great stability; with one model I obtained a glide of 32 yards.

I believe the Weiss monoplane now at Brooklands is based on the "negative" tip principle.

Newcastle-on-Tyne.

C. IAN BURRELL.

## FEES FOR PASSENGER FLIGHTS.

[836] I have read with much interest your descriptions of various flying meetings and flying news, and was especially interested in your accurate accounts of the Blackpool Carnival. As I almost lived on the ground for three days during the first week, I am able to vouch for the faithfulness with which you reported it. As a "man in the street" I have always taken a keen interest in flying. My first sight of a machine in the air was the never-to-be-forgotten arrival of Paulhan at Didsbury on 28th April last. I stopped out all night and was well repaid. I also witnessed all the flights made by Grahame-White at Halifax last June close at hand. Now all this has begot in me a keen desire to obtain the experience of an actual flight, and I should be greatly obliged if anyone could suggest a way, short of the heavy fees at present prevailing, whereby I could obtain a flight as passenger. I tried my luck at Blackpool in this respect during the "lottery week," but had no good fortune, and could find no person holding a ticket, or willing to sell one. I am convinced that if only a few experienced aviators realised the position, and gave flights at, say, 10s. to £1 10s. a time on calm days near a big city, they would find their pockets as well lined as from a great race meeting. Hundreds of people who, like myself, cannot afford £10 10s. a flight, would gladly pay above prices for a short passage through the air.

Manchester.

P. A. AMOS.

## AERONAUTICAL TERMINOLOGY.

[837] In reference to the above, I should like to make one or two criticisms and suggestions.

The term "plane" is proposed for the supporting surfaces of flying machines. I would suggest that "sustainer" is more expressive and also more correct, seeing that the surfaces are curved, not plane. This also puts "aeroplane" out of action. I don't see anything to beat "flyer" myself.

I would suggest that instead of the awkward and, to most people, unintelligible term "*vol plané*," the more concise and expressive word "coast" should be used.

It is stated in the latter part of the article that the sweep of a sustainer or plane is approximately equal to its chord. I should like to know the reasons for this statement, as it appears to me much more likely that the effective sweep is about equal to the difference in level between the fore and aft edges of the sustainer. My reasons are these. Suppose we have a thin, flat surface, placed horizontally, this would have no sweep at all. Suppose it were then bent so that it had a slight camber, the aft edge being brought lower than the fore edge. It would then deflect a thin stratum of air. If we continued to increase the camber in this way, the sweep would be increased, though at the same time the chord would be decreased.

Perhaps I had better explain what I mean by effective sweep.

I would define it as the depth of an imaginary stratum of air, every particle of which is supposed to have the same acceleration, and which would give the same lift and drift as the stratum of air actually deflected by the sustainer, in which, owing to the compressibility of air, those particles more distant from the sustainer have less acceleration than those near to it.

Bradford.

E. B. PAUSEY.

## HENSON AEROPLANE AND THE DIHEDRAL ANGLE.

[838] Mr. Vernham (625) may not have access to the book recommended by Octavius (694). If I remember rightly, a description of the Henson aeroplane appeared in one of the issues of *Fry's Monthly* about last April.

Concerning the dihedral angle, Mr. Wetter's letter (696) raises a question similar to one which occurred to me lately. Part of the function of the dihedral angle is, I believe, to assist other lateral stability devices when turning a corner. It seems to me that the air banking on the outside of the curve will act as does the sudden side wind mentioned in Mr. Wetter's letter, and tend to increase the tilt.

ANDREW FORSON.

## AEROPLANE EFFICIENCY FORMULA.

[839] I enclose a formula for the efficiency of an aeroplane which may be of some interest to your readers.

The efficiency of an aeroplane is the ratio of its weight multiplied by its velocity, to the horse-power of the engine multiplied by the ratio of lift to drift. Thus,  $E = \frac{WV}{375 HL}$ , where  $E$  = efficiency,  $W$  = total weight in lbs.,  $V$  = maximum velocity attained in m.p.h.,  $D$  = drift of planes,  $H$  = h.p. of engine,  $L$  = lift of planes. This formula includes the efficiency of the propeller and motor.

If the efficiency of the planes alone is required, it is given by the formula  $E' = \frac{WD}{LT}$ , where  $T$  is the thrust of the propeller.

These formulae have the advantage of giving the efficiency in the form of a fraction, from which the percentage efficiency can be obtained. If applied to successful aeroplanes, the results should be interesting, but as I have no complete data as to the ratio of lift to drift of the various machines, I have not been able to work out any efficiencies.

Leamington Spa.

G. B. BENNETT.

[In the first of the above formulae,  $W$  and  $L$  cancel, thus leaving the expression in the form  $E = \frac{TV}{375 \cdot h.p.}$ , where  $T$  = thrust = drift, This is, of course, the efficiency of the power plant inasmuch as it equates power consumed to power provided. An expression  $E = \frac{WV}{375 \cdot h.p.}$  might be employed with some reason as a measure of the overall efficiency of a machine. The lift efficiency of a plane is  $\frac{L}{D}$ .—ED.]

## THE NEALE BIPLANE.

[840] My attention has been called to a letter appearing in your last issue from Mr. Bertie Rippen. Mr. Rippen's *locus standi* here at the time the photograph referred to was taken was that of "one of the Neale pupils"—nothing more. Later on, when delivery is executed, he will own a quarter share of a "Neale VII."

Mr. Rippen's statement that he originated the scheme and found the whole of the money for building a "Neale VII" is incorrect, and in view of the importance of the provisional patents covering the screening control, might mislead the aviation world. When the validity of the Wright Brothers' patents for wing warping and ailerons, as used on every successful machine excepting "Neale VII" are tested in this country—as, sooner or later, they are certain to be—the screening control patents will assume great value, not only because they are obviously the only successful alternative method at present available, but because they will be generally found, as my experience has shown me, to be a more stable and easily managed method of control than wing warping or ailerons, eliminating one movement of the control. It is therefore of importance for me to state that Mr. Bertie Rippen had no hand whatever in originating the scheme, other than in piloting the machine during his tuition. Thanking you for giving space to this correction.

Brooklands.

J. NEALE.

## PARACHUTES.

[841] I should be much obliged if one of your numerous readers would tell me how many square feet of material are required in a parachute to lower an average man from practically any height, and what is the best material to make same of.

Benton.

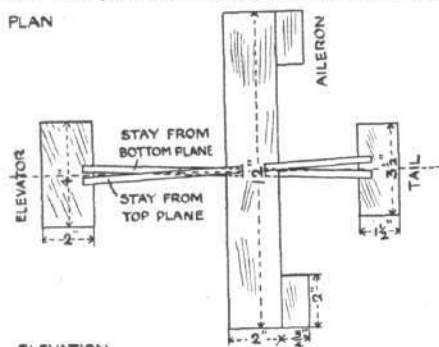
H. E. VAUGHAN.

## MODELS.

### PAPER MODEL BIPLANE.

[842] Seeing that you encourage model makers in your valuable paper, I venture to send you a plan and elevation of a model glider made of cartridge paper, which is simple to make and also provides amusement and instruction in watching how it behaves under varying conditions (indoors). The dimensions are given on the diagram. There is nothing but cartridge paper used in its construction, excepting the ailerons, which are of thin writing paper. The main planes are stiffened at the leading edge by a strip of cartridge paper,  $\frac{1}{4}$  in. wide, to assist in keeping the camber. There are five supports between the two main planes, one at each corner and one at the centre at the rear edge. Both these supports, and the stays from main planes to elevator and tail, are made as follows: Take a strip of cartridge paper 1 in. wide of the required length, and fold it lengthways; cut along the fold for, say,  $\frac{1}{4}$  in. at each end; in the case of the supports, splay the ends out at right angles to the rest of the strip; these splayed out ends then to be pasted to upper side of bottom plane and lower side of top plane respectively; in the case of the stays, the elevator, tail, or main planes, as the case

PLAN



ELEVATION

may be, to be slipped between the split ends of the strip, which are then pasted down. The stays and supports should be both pasted inside the fold, as when double they are stronger. If desired, a liner of one thickness of cartridge paper may be inserted into the fold. Steering is effected by bending the ailerons on one side or the other, up or down, as the rudder is immovably pasted to the tail. The end supports between the main planes have a piece of cartridge paper pasted on to them, 2 in. by 2 in., and cut to the shape of the camber of the planes. These are to assist lateral stability.

It is instructive to watch this model in a side draught, in a room. It appears to have a considerable amount of stability. The diagrams are drawn to  $\frac{1}{2}$  scale.

I was much interested in your answer to letter 605, which explains "pitch" admirably. I must confess that I have had much difficulty in realising what the pitch of a propeller was. In the diagram you give you show the propeller blade as of similar section to the plane of an aeroplane, i.e., cambered. Has this section been tried for a propeller blade? If not, I should think it might be worth trial. Surely there are many points of similarity in the action and effect of a propeller blade and that of the main plane of an aeroplane, save that one travels in a circular path and the other in a straight one.

Apologising for taking up so much of your time.

London. C. A. K. Cox.  
[It is correct to regard each blade of a propeller as an aeroplane specially designed to travel in a helical path. A two-bladed propeller thus consists of two aeroplanes acting in the same field, which shows why there is a limit to the useful number of blades that a screw may possess.—ED.]

### OUR SPEED-ALARM COMPETITION.

Further letters, accompanied by descriptions and drawings, for the Speed Alarm Competition are acknowledged from:—

Fredk. Cullen.	A. D. Stacey.	P. S. Wilkinson.
"D."	"B. W. M."	J. H. Cardew.
Driver Brown.	Alan Curtiss.	O. J. Mastrand.
W. F. Claxton.		

## FLIGHT PIONEERS.

Full page Portraits which have appeared in "Flight."

FRAMED, this series makes an unique gallery of our flying men. Most copies can still be obtained from the Publishers, 44, St. Martin's Lane, W.C., for 1 $\frac{1}{2}$ d. each.

	1909.		1910.
S. F. CODY ...	Sept. 18	CECIL GRACE ...	July 9
J. T. C. MOORE ...	Nov. 6	CAPT. BERTRAM DICKSON ...	" 16
BRABAZON ...	" 13	HON. ALAN BOYLE ...	" 23
THE LATE HON. C. S. ROLLS ...	Dec. 18	J. ARMSTRONG DREXEL ...	" 30
FRANK MCCLEAN ...	1910.	LANCELOT D. GIBBS ...	Aug. 13
ROGER W. WALLACE ...	Jan. 1	JAMES RADLEY ...	" 20
MORTIMER SINGER ...	" 15	JOHN B. MOISANT ...	" 27
LOUIS PAULHAN ...	" 22	J. W. DUNNE ...	Sept. 3
A. V. ROE ...	" 29	ALEC OGILVIE ...	" 10
HENRY FARMAN ...	Feb. 12	ROBERT LORRAINE (MR. "JONES") ...	" 17
HIRAM S. MAXIM ...	Mar. 12	G. A. BARNES ...	" 24
C. GRAHAM-WHITE ...	April 30	EMILE LADOUGNE ...	Oct. 15

## OFFICIAL RECORDS.

Distance and Duration.—Olieslaegers (Belgium), at Rheims, on a Blériot monoplane with Gnome engine: 244'309 miles in 5h. 3m. 5 $\frac{1}{2}$ s.

Speed.—J. Radley (Great Britain), at Lanark, on a Blériot monoplane with Gnome engine: 1 mile in 47 $\frac{1}{2}$  secs. = 75'95 m.p.h.

Altitude.—Wynnmalen, at Mourmelon, on a Henry Farman biplane fitted with Gnome motor: 2,800 metres.

## Aeronautical Patents Published.

Applied for in 1909

Published October 20th, 1910.

19,315. VICKERS, SONS AND MAXIM, LTD., AND A. A. REMINGTON. Airships preventing loss of weight through consumption of fuel.  
30,105. J. S. HOUGH. Model airships and flying machines.

Applied for in 1910.

Published October 20th, 1910.

210. F. HUTH. Flying machines.  
14,724. H. E. MISTIGRY. Cats on airships.

## DIARY OF FORTHCOMING EVENTS.

### Foreign Events.

1910.	1910.
Oct. 15-Nov. 2 Paris Aero Show.	Oct. 15-Nov. 1 Liege.
Oct. 18-20 Brussels Meeting.	Oct. 29 New York.
Oct. 22-29 American International Meeting, Belmont Park, N.Y.	Gordon-Bennett Aviation Cup.
	Dec. 4-18 Marseilles.

## PRINCIPAL CONTENTS.

	PAGE
Advantage of High Speed ...	846
Portrait: M. Alphonse Clement ...	857
The Paulhan Biplane ...	858
Impressions of Paris Show ...	850
Royal Aero Club Notes ...	864
Progress of Flight About the Country ...	861
British Notes of the Week ...	866
Paris to London by Airship ...	868
Failure of the Transatlantic Voyage ...	869
Paris to Brussels and Back ...	870
American Notes ...	871
Foreign Notes ...	872
Can We Fly Faster For Less Power? ...	873
Correspondence ...	873

## FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.

Telegraphic address: Truditur, London. Telephone: 1828 Gerrard.

## SUBSCRIPTION RATES.

FLIGHT will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.	s. d.	ABROAD.	s. d.
3 Months, Post Free ...	1 8	3 Months, Post Free ...	2 9
6 " " " ...	3 3	6 " " " ...	5 6
12 " " " ...	6 6	12 " " " ...	11 0

Cheques and Post Office Orders should be made payable to the Proprietors of FLIGHT, 44, St. Martin's Lane, W.C., and crossed London and County Bank, otherwise no responsibility will be accepted.